TEXTILE TECHNOLOGY DIGEST

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ABSTRACTS

FIBERS A

THE SIGNIFICANCE OF FIBER DENSITY: HOW MUCH PER POUND? Man-Made Textiles 34: 73 (Jan. 1958). (404)

Densities of well known fibers (both natural and man-made) are listed, and the relationship of fiber density to cost is appraised.

CREEP AND RECOVERY PROPERTIES OF TEXTILE FIBERS. S. Yamaguchi (Kogakuin Univ.). J. Textile Machy. Soc. Japan 3: 17-28 (Dec. 1957). (405)

General formulas for creep and recovery phenomena are derived, and these properties are quantitatively expressed in these formulas for cotton, wool, viscose rayon, Bemberg, acetate, Vinylon, and nylon fibers. Diagram. Graphs. 5 references.

WILL OTHER FIBERS MAKE SERIOUS INROADS ON USE OF WOOD FOR PULP? M. N. May, I. H. Isenberg, and A. N. McLeod (Inst. of Paper Chemistry). Paper Trade J. 142: 36-40 (Jan. 6, 1958). (406)

A discussion of the future for bagasse, straw, bamboo, synthetic fibers, cotton, and glass in papermaking. Photomicrographs. 9 references.

NATURAL FIBERS A 1

NEW MATERIALS FROM THE COTTON PLANT. PART 2. FUEL BRICKETTES, WALLBOARD, AND PAPER. A. E. Haarer. Fibres 18: 391-392 (Dec. 1957). (407)

Potential by-products of cotton stalks are discussed.

CALIFORNIA'S 1957 COTTON. F. L. Gerdes. Textile World 108: 93, 168, 172 (Jan. 1958). (408)

USDA fiber and spinning tests on San Joaquin cotton show that in comparison with 1956 cotton the grade is higher, staple length is the same, fiber strength is greater, neps are fewer, and yarn is smoother. Table.

ON THE SIZE OF THE INTERMICELLAR SPACES AND CAPILLARIES IN JUTE FIBERS AS REVEALED BY X-RAY ANALYSIS. S. K. Chowdhury (Indian Central Jute Comm.). Textile Research J. 27: 935-939 (Dec. 1957). (409)

CORTICAL DIFFERENTIATION IN BURMESE WOOL. W. R. Lang (Gordon Inst. of Technol.). (Letter to the editor). Textile Research J. 28: 90-91 (Jan. 1958). (410)

TRENDS IN QUALITY NUMBER-FINENESS-STAPLE CRIMP RELATIONSHIPS IN AUSTRALIAN WOOL. W. R. Lang (Gordon Inst. of Technol.). J. Textile Inst. 48: T495-T499 (Dec. 1957). (411)

Comparisons are made of assessments at intervals during a 37 year period. Tables. Graph. 8 references.

PROGRESS REPORT: ANNUAL VARIETAL AND ENVIRONMENTAL STUDY OF FIBER AND SPINNING PROPERTIES OF COTTONS, 1956 CROP. U. S. Agric. Research Serv., Crops Research Div., Beltsville, Md. June 1957. 93 p. Free. (412)

This report presents the results of fiber and yarn tests on current varieties and experimental strains from the 1956 crop. The fiber and yarn tests were made primarily to evaluate new strains and varieties that have been recently developed or are in the process of being developed throughout the cotton belt. Current varieties now widely grown have been included as checks.

ACTION OF HEAT ON WOOL. J. Marten and J. B. Speakman (Leeds Univ.). Chem. & Ind. No. 27: 955 (July 6, 1957). (413)

The discoloration and degradation which wool undergoes at temperatures above 105° C can be inhibited by introducing unsaturated compounds into the fibers. An all-wool flannel treated with maleic anhydride and heated in an atmosphere of dry nitrogen for 24 hr at 150° C gave a fabric which was much more resistant to dissolution in sodium hydroxide and urea-bisulfite solutions than the heated untreated flannel.

TECHNOLOGY OF CORDAGE FIBERS AND ROPE. D. Himmelfarb. Leonard Hill (Books) Ltd, 9 Eden Street NW1, London. 1957. 370 p. 35s. (414)

Cordage and rope technology presented under the following chapter headings: cordage fibers: classification, use, structure, and properties; cordage fibers: growth, processing, and grading characteristics; fiber preparation; yarn spinning; rope and cordage twisting, laying, and braiding; finishing operations; control of quality: factors of variation; production analysis and control; rope properties; protection against environment deterioration; ropes and cordage in service; rope, cordage, and twine: identification by use.

RAMIE. W. Bally. Ciba Rev. 11: 2-31 (Nov. 1957). (415)

Ramie as an economic fiber plant, p. 2-8; History of ramie, p. 9-12; Ramie plant and its fiber, p. 13-20; Ramie culture and fiber preparation, p. 21-31. Photographs. Tables. Photomicrographs.

LEXICON OF SILK. Am. Fabrics No. 41: 68-73 (1957). (416)

An illustrated glossary of silk terms, mainly fabric definitions. 17 fabric swatches.

MANMADE FIBERS A 2

TECHNICAL INFORMATION ON COURTELLE. Courtaulds Ltd. Textile Weekly 58(1): 19-20 (Jan. 3, 1958). (417)

Details of fiber properties, spinning on the cotton, worsted, and woolen systems and on the turbo stapler, sizing, knitting, dyeing, and finishing are briefly outlined.

COURTELLE. Courtaulds Ltd. Skinner's Silk & Rayon Record 32: 45 (Jan. 1958). (418)

The properties of this new acrylic fiber are compared with other commercial acrylic fibers, and its dyeability and other features are briefly described.

ACRYLIC FIBERS: PROGRESS REPORT. Man-Made Textiles 34: 35-68 (Jan. 1958). (419)

Introduction, p. 35-38; High-bulk acrylics: from tow to knitted garments, p. 40-48; Acrylics in the suiting trade: weaving high grade cloths from mule-spun yarns, p. 48; From tow to yarn on the worsted system, p. 50-52; Opportunities for fabric development, p. 56; Rapid development of acrylics in the midlands, p. 58; Styles in acrylics, p. 62-64; Dyeing behavior of acrylic fibers, by H. D. Edwards, p. 66-68.

POLYMER PROGRESS: 1958 SERIES. PART 1. BASIFIED ACRYLICS. J. A. Somers. Man-Made Textiles 34: 69-70 (Jan. 1958). (420)

Two methods for improving the dyeability of the acrylic fibers by increasing their basicity and thus their receptivity for acid wool dyes and selected direct cotton dyes are described. In one method the principle involved is the copolymerization of acrylonitrile with a basic substance, while the other consists of preparing a copolymer containing acrylonitrile and another substance which can be made basic by suitable treatment of the copolymer, either before or after its conversion into fiber. References.

PRODUCTION OF FIBER-FORMING POLYAMIDES: SOME RECENT PROGRESS. A. J. Hall. Fibres 18: 402-405, 416 (Dec. 1957). (421)

Two methods of forming high melting point polyamides (Swiss Pat. 276 924 and BP 782 441), the preparation of polyamides from linear organic omega-amino acids (BP 782 452), and from a dicarboxylic acid of the adipic and suberic acid type and a mixture of metal and paraxylylene diamines (BP 766 927) are described in detail.

DEVELOPMENTS IN THE PRODUCTION AND COLORING OF POLYACRYLONITRILE FIBERS. B. C. M. Dorset. Textile Mfr. 83: 632-636 (Dec. 1957). (422)

The use of terpolymers for production of fibers (BP 782 061), methods for wet spinning acrylic fibers (BP 782 061, 729 382, 748 504, 771 815), and methods for improving dyeability (BP 782 155, 751 865, and 745 687) are described.

COURTELLE: NEW ACRYLIC FIBER. Courtaulds Ltd. Textile Recorder 75: 56-57 (Jan. 1958). (423)

Courtelle is basically a polyacrylonitrile compound. It is roughly circular in section, has excellent resistance to chemicals, and is not attacked by moths or by mildew. It does not melt on heating but sticks at 560° F. Information on spinning, sizing, weaving, dyeing, finishing, and uses is given, as well as a table comparing the properties of Courtelle staple fiber with those of other manmade and natural fibers.

DEVELOPMENTS IN GLASS FIBER APPLICATIONS. Textiles in Ind. 2: 101-102, 110 (Nov./Dec. 1957). (424)

The use of glass fibers for Deeformat type 3 (mechanically bound mat backed with fine cellulosic fibers) and in glass fiber reinforced laminates for aircraft seats, reservoir tanks, hose ramps, and yacht construction is discussed. Photographs.

PARTICULAR PROPERTIES OF NEW FIBERS WHICH HAVE BEEN TURNED TO TEXTILE ADVANTAGE. G. Loasby. J. Textile Inst. 48: P702-P712 (Oct. 1957). (425)

A review, with 70 references.

MANMADE FIBERS. 3d. ed. R. W. Moncrieff. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. N.Y. 1957. 661 p. $9.75. (426)

Greatly enlarged revised edition (former title in first two editions: Artificial fibers) with 44 chapters arranged under the broad headings: structure and properties of fibers, regenerated and modified cellulosic and alginic fibers, regenerated protein fibers, synthetic fibers, and processing (includes control of static, textured yarns, nonwoven fabrics, fiber identification, etc.). A list of commercial manmade fibers gives trade name, type, and manufacturer. References are given at the end of each chapter. Bibliography.

FINE STRUCTURE STUDIES ON REGENERATED CELLULOSE FIBERS FROM DIFFERENT MANUFACTURING PROCESSES. PART 2. STATE OF CRYSTALLIZATION. W. Kast. Forschungsberichte Wirtschafts- u. Verkehrsministeriums Nordrhein-Westfalen no. 261: 1-67 (1956). In German. Summary in BCIRA 36: 698 (1956). (427)

FLOXAN, A NEW WOOL-LIKE VISCOSE FIBER. W. Bandel (Spinnfaser AG). Textil-Praxis (English ed.) No. 4: 145-151 (Nov. 1957). (428)

Floxan is a new viscose fiber (developed by the Spinnfaser AG) which has the desired properties of wool (permanent crimp, fullness, and good dye affinity), can be advantageously processed in mixtures with wool, and takes up a remarkably low amount of dirt. It is particularly suitable for the manufacture of carpets and blankets.

RHOVYL: POLYVINYL CHLORIDE FIBERS. L. Hochstaedter (Rhodia, Inc.). Textile Research J. 28: 78-85 (Jan. 1958). (429)

The properties of nonpostchlorinated PVC fibers, such as noninflammability, extreme resistance to chemical attack, and, in Rhovyl 55, high shrinkage, place these Rhovyl fibers in a unique position among synthetics. Rhovyl 55, which shrinks up to 55%, is most often used in industrial filters, bulk yarns for novelty effects (suede, three-dimensional fabrics, etc.), and wherever high resistance to abrasion is necessary. Rhovyl 15 and Rhovyl 30 are intermediate partially shrunk PVC fibers with residual shrinkage of 15% and 30% respectively, and are used in bulk knitting yarns, for imitation fulling, and special novelty effects. Rhovyl T is Rhovyl that is preshrunk so as to be applicable to apparel fabrics and is used where softness, crease resistance, and compatability in blends are desired. Diagram. Graphs. Tables. Photomicrograph. 6 references.

YARN PRODUCTION B

PRODUCTION AND USES OF BLENDED YARNS. F. Charnley (Brit. Rayon Research Assoc.). Textile Weekly 57(2): 1852-1856 (Dec. 27, 1957). (430)

The importance of fiber properties in relation to fabric properties is considered, and blends which have incorporated desirable fiber properties (e.g. cotton/viscose, viscose/acetate, wool/Terylene, wool/acrylic fiber, and cotton/Terylene) are discussed. The choice of blend proportions and blending machinery is also covered.

APPLICATION OF FIBER FINENESS DATA TO IMPROVE COTTON PROCESSING. N. N. Nolen. Textile World 108: 96, 172 (Jan. 1958). (431)

The application of cotton fiber laboratory data to processing operations can be of considerable help to the carder and spinner. The size, number, and strength of individual fibers have a definite effect on blending, neps, yarn strength, twist, ends down, skein break, and dyeing qualities. Micronaire and Pressley readings alone tell a lot about how cotton will behave when it is processed. A conversion table based primarily on the findings of these two instruments is given, and its use is explained.

SPINNING MACHINERY DEVELOPMENTS. G. Porsche. Melliand Textilber. (English ed.) 38, No. 4: 246, 248 (1957). (432)

A power driven unit for mounting clothing on cards, the Japanese OM 2-zone drafting system for direct can spinning, and needle roller bearings for fluted drafting rolls are briefly described. Diagram. Photographs.

FACTORS AFFECTING THE QUALITY OF JUTE YARNS. C. M. Watson. Textile Mfr. 84: 13-15 (Jan. 1958). (433)

An account of a series of processing experiments designed to examine the characteristics obtained from yarns spun under different conditions of doubling and drafting from roving produced over a system with 1,024 doublings when compared with a control, comparable with modern practice, and using a total of 196 doublings, drawing to spinning. Graphs. Tables.

FIBER MOTION IN ROLLER DRAFTING. H. Goto, S. Ichino, and S. Kurozaki (Textile Inst., Japan). J. Textile Inst. 48: T389-T404 (Oct. 1957). (434)

The main part of this paper is devoted to roller drafting using means based on the investigations of Grishin and Foster. The generalization of Grishin's method is called the "drafting-field method" and the generalized work of Foster the "two-velocity model method". In the steady state of fiber motion, it has been proved that Grishin's work gives the same results as Foster's when the distribution function $\rho(x)$ is introduced. A value of $\rho(x)$, determined semi-experimentally, gives a draft curve in good agreement with that found by calculation. Graphs. 6 references.

ASSURING ACCURATE ROLL SETTINGS. M. Chagro. Textile Inds. 122: 107-109 (Jan. 1958). (435)

The character of the stock, mass or bulk being drafted at various drafting sources, and the amount of drafting already completed as the stock advances toward the final drafting processes are all-important factors to be considered in roll setting. Two mill practices for recording and controlling roll settings are described. Diagrams.

MANUFACTURE OF KNOP AND FANCY YARNS IN WOOLEN SPINNING. G. Hadamzyk. Melliand Textilber. (English ed.) 38, No. 4: 238-246 (1957). (436)

The methods and machines used for the production of knop and flake yarns are explained in detail. Diagrams.

COTTON AND ORLON BLENDS IN YARNS. J. A. Goodwin. Bull. Lowell Tech. Inst., Ser. 61, No. 2: 3-15 (Nov. 1957). (437)

The blending of cotton and Orlon as a sandwich blend previous to picking and processing into yarns of the same count using a variety of twists are reported. The following blends were prepared: 100% Orlon, 75% Orlon/25% cotton, 50% Orlon/50% cotton, 25% Orlon/75% cotton, and 100% cotton. The effects of blend composition and twist on some of the physical characteristics of the yarn were determined. Tables. Graphs.

UNRETTED FLAX PROCESSING. Textile Recorder 75: 52-53 (Jan. 1958). (438)

The production of "green" or unretted flax fiber was developed during the war years to meet the needs of the industry following the loss of continental supplies and necessitated the evolution of a new technique in preparation and spinning. The main difference is the introduction of a rove boiling process prior to spinning. Methods and apparatus for extracting the fiber prior to boiling, as well as rove boiling practice, are described. Diagrams.

RIETER CONVERTER D 6/2. Joh. Jacob Rieter & Co. Ltd. Textile Weekly 58(1): 97-98 (Jan. 10, 1958). (439)

The Rieter converter, D 6/2, transforms endless filament tows into drawable sliver. The endless filament tows are cut to a definite staple length with a cutting device, combed in the intersecting gill box, drawn to the required fineness, and condensed in a crimping box ready for subsequent processing. Machine specifications and operation are described. Photographs.

STUDY OF SOME FACTORS AFFECTING THE PULLING OF RAGS. PART 2. C. D. Meyer and P. P. Townend (Leeds Univ.). Textile Mfr. 83: 606-608, 613 (Dec. 1957). (440)

The effects of feed roller setting and diameter, bit box slide and bit roller setting, and rate of production on percentage bits in shoddy are discussed. Tables.

OPENING, PICKING, FIBER PREPARATION B 1

MODEL D OPENER. K. Aoki, A. Aoki, T. Tanimoto, and N. Arita (Daiwa Spinning Co. Ltd). J. Textile Machy. Soc. Japan 3: 42-47 (Dec. 1957). (441)

The main part of the model D opener is a carding cylinder with specially designed saw-toothed wire on the cylinder surface. The mechanical features of the opener are described and the results of mill tests are presented. This opener is also recommended for the short-cut system of opening and picking cotton and for the opening of rayon. Photographs. Diagram. Graphs.

CARDING AND COMBING B 2

FUNCTIONS OF THE FANCY ROLLER IN WOOLEN AND WORSTED CARDING. P. P. Townend (Leeds Univ.). Textile Recorder 75: 54-56, 58 (Dec. 1957). (442)

The functions of the fancy have been defined as those of a raising agent while at the same time it must maintain a sharp and uniform point on the swift. Whether the fancy in its present form can ever do this efficiently has been questioned. The factors which are thought to influence the raising action of the fancy have been set out and a table given showing the relative swift and fancy populations for the different classes of trade. Consideration has been given to the depth of penetration of the fancy into the swift and a formula has been given for calculating this depth. Finally, an account has been given of two experiments designed to demonstrate how the surface speed of the fancy affects (1) the nep content of the resulting sliver; and (2) the accumulation of material in the swift and its accompanying rollers. Tables. Graph.

GEARMOTOR TYPE CARD DRIVE. R. W. Yawn and E. C. Fox. Textile Ind. 121: 98-100 (Dec. 1957). (443)

The new drive, known as a full-floating cotton-card gearmotor drive, consists essentially of an enclosed gear unit and a totally enclosed nonventilated motor as an integral assembly. The unit is designed to be keyed onto the card shaft, which supports the entire weight of the gear unit and motor. A double reduction set of helical gears is used to reduce the speed of the motor to the proper operating speed of the card. By using precision gears, wear is minimized and power transmission is accomplished with an efficiency better than 96%. The gears are completely enclosed in a cast-iron housing to prevent the collection of lint. Features and advantages of the drive are described. Photographs.

CARD-GRINDER TRAINING: HOW TO GRIND CARDS. P. C. Kochhar. Textile World 108: 76-78 (Jan. 1958). (444)

Pictures with captions cover preparation for card grinding, as well as setting and grinding the card.

HIGH PRODUCTION CARDING FOR CARPET YARNS. Wm. Tatham Ltd. Textile Recorder 75: 70, 73 (Jan. 1958). (445)

Features of a new roller and clearer card designed specifically for use in the production of manmade fiber carpet yarns are described. Diagram. Photograph.

CARD CLOTHING: YESTERDAY, TODAY, AND TOMORROW. G. Leather (English Card Clothing Co. Ltd). Textile Weekly 58(1): 91-95 (Jan. 10, 1958). (446)

Following a history of the development of present day clothing, methods of mounting and maintenance are discussed.

DUST IN CARDROOMS. Third interim report of the Joint Advisory Committee of the Cotton Industry. Gt. Brit. Ministry of Labour & Nat. Serv. H. M. Stationery Office, London, 1957. 30 p. Through BCIRA 37: 539 (1957). 2s 6d. (447)

Tests of an exhaust system for carding engines, the Shirley pressure point system (the Shirley dust hood), have been made under laboratory conditions and on a full-scale installation in a mill under normal working conditions. With this system, which is illustrated, air is exhausted from (1) the region around the junction of the card and doffer cylinder, (2) above the takerin, (3) between the flats. The results of dust estimations are quoted.

WHITIN CARD COILER FOR LARGE CANS. Whitin Rev. 24: 56-58 (Dec. 1957). (448)

This coiler accommodates cans 16 in. or 18 in. in diameter and 36 in. or 42 in. high. The largest cans will hold up to 40 lb of normal sliver and approximately 50 lb of condensed sliver. Features are described and illustrated.

NEPS AND CARDING. D. Kaufmann. Textil-Praxis (English ed.) No. 4: 151-156 (Nov. 1957). (449)

Results of an investigation on the influence of flat and doffer adjustments, and takerin, flat, and doffer speeds, on nep formation in the card web indicate that: (1) the normally operating card does not produce neps, but reduces them; (2) the removal of impurities or neps is, in general, performed by opening and cleaning; and (3) the direct elimination of impurities and neps in the waste is of secondary importance. Graphs. 2 references.

SPINNING, WINDING, TWISTING B 4

RUBBER RUBBING "LEATHERS" IN PRACTICE. K. Rath. Melliand Textilber. (English ed.) 38, No. 4: 248-251 (1957). (450)

The advantages of rubber "leathers" for wool spinning, fitting techniques, and a cleaning apparatus are briefly discussed. Diagram.

POWER REQUIREMENTS IN RING SPINNING. H. Catling and A. E. DeBarr (Shirley Inst.). J. Textile Inst. 48: T440-T465 (Nov. 1957). (451)

See abstr. 2447 (1957).

FACTORS AFFECTING YARN FORMATION IN WOOLEN MULE SPINNING. PART 1. TENSILE PROPERTIES OF CONDENSED WOOLEN SLIVERS. W. D. McNair and N. H. Chamberlain. J. Textile Inst. 48: T423-T439 (Nov. 1957). (452)

Part 1 consists of an experimental examination of the tensile properties of woolen slivers, as a function both of their inherent fiber structure, diameter or counts, and of the twist inserted into them. It also deals with the loss of twist which is invariably found to occur when a woolen sliver is simultaneously twisted and extended. This information is essential to any attempt to forecast mathematically the probable course of the drafting process when a sliver of known irregularity is simultaneously twisted and extended. Graphs. 4 references.

SCHEDULING CONTROL BOARD FOR SPINNING SIZING TESTS. N. L. Enrick. Inst. of Textile Technol., Charlottesville, Va., Dec. 6, 1957. 7 p. ITT report no. 17. (453)

The control board described is simple to operate and permits the convenient programming of tests for size and other quality characteristics in a multi-style mill. Recommended sampling trucks and testing work forms are included. 5 references.

SUNSPOT ACTIVITY AND COTTON SPINNING CONDITIONS. P. M. Strang (Whitin Mach. Works), and D. Linehan (Weston Observatory). Whitin Rev. 24: 30-35 (Dec. 1957). (454)

Annual cycles in end-breakage in cotton spinning are compared with sunspot activity cycles and it is suggested that a relationship may exist. Graphs. Photographs.

VACUUM ENDS DOWN COLLECTION YIELDS BETTER YARNS. G. A. Archer (Pneumafil Corp.). Modern Textiles Mag. 39: 33-34, 44 (Jan. 1958). (455)

The pneumatic ends-down collection system, its advantages, and its effects on yarn quality are described. Some of the problems connected with its use are also discussed. Photographs.

BREAKING-IN NEW SPINNING RINGS. W. P. Dutemple. Textile World 108: 92, 168 (Jan. 1958). (456)

Pointers on starting up new rings, changing travelers, preventing rust, and turning over rings.

TSS DRAFTING SYSTEM ON RING FRAMES. Globe Rev. 3, No. 1: 23-34 (1957). (457)

The TSS drafting system makes use of a new type of top weighting arm designed by the Wurttembergische Spindelfabrik GmbH. The design and construction of this weighting arm permits the use of a number of different arrangements which are suitable for different fibers and conditions. Features of the different arrangements are described. Photographs. Diagrams.

ROLLER BEARING LOOSE BOSS TOP ROLLERS. Globe Rev. 3, No. 1: 35-36 (1957). (458)

The advantages and construction of these rolls are briefly described. Diagrams.

PNEUMATIC BROKEN-END COLLECTION ON RING SPINNING FRAMES. Globe Rev. 3, No. 1: 40-41 (1957). (459)

The use of an air diffuser compartment for broken-end collection and features of the Pneumaroll system are described. Photographs.

ELECTRICAL EQUIPMENT ON P TYPE RING FRAMES. Tweedales & Smalley Ltd. Globe Rev. 3, No. 1: 19-22 (1957). (460)

Starter control panels, electromagnetic clutches, and snap lock switches used on the P type frames for large packages are described. Photographs. Diagrams.

OPEN TYPE CREELS ON RING SPINNING FRAMES. Globe Rev. 3, No. 1: 37-39 (1957). (461)

The open type ring frame creel has been specially designed to facilitate the adoption of traveling cleaners. Creel arrangements for different applications are illustrated. Diagrams.

ENGINEERING CHANGES AND IMPROVEMENTS IN FUNCTION OF SPINNING FRAMES, 1947-1957. E. K. Swift, Jr. Whitin Rev. 24: 17-29 (Dec. 1957). (462)

Paper presented at American Society of Mechanical Engineers, New York, December 5, 1957. Photographs. Diagrams.

ANALYSIS OF THE ELASTIC BEHAVIOR OF A TWISTED STRUCTURE. T. Zusi (Tokyo Univ.). J. Textile Machy. Soc. Japan 3: 1-8 (Dec. 1957). (463)

To explain the mechanical properties of yarns and fabrics, a theory of twist elasticity is developed. Graphs.

ELECTROMAGNETIC TRAVERSE FOR HIGH WINDING SPEEDS. E. R. Laithwaite. Skinner's Silk & Rayon Record 32: 56, 58 (Jan. 1958). (464)

The development of an electromagnetic mechanism which performs 1,000 traverses/min. over a 4-1/2 in. amplitude is described. This device has a rotor weighing over 1 lb. and the vibration and noise is excessive. It is hoped that very light rotors may ultimately be used. The cost of such a device may well be of the same order as that of a mechanical system with the additional advantages of higher traverse speeds and easy replacement of worn parts. This last advantage means in effect that only the end springs would need replacement. Diagrams. Photograph. 3 references.

ECONOMIES OF LARGE PACKAGES IN THE TEXTILE INDUSTRY. PART 1. R. Lux. Whitin Rev. 24: 44-55 (Dec. 1957). (465)

In considering the economics of large packages, there are so many variables that no set rule can be made that would apply to all mills and all processes to determine the economic value of conversion to larger packages. However, the author points out a method of procedure that may be used as a guide which will result in a reasonably accurate estimate of the effect of larger packages on the productive cost per pound and the expenditure required for conversion. Cost tables.

TWISTING ON DOUBLERS WITH 2 LINES OF DELIVERY ROLLERS. W. Christ. Melliand Textilber. (English ed.) 38, No. 4: 251 (1957). (466)

Whenever a new lot of yarn supplied to a twisting frame does not have the same number of turns as that to which the frame has been adjusted, a considerable loss of time and production results. This difficulty can be avoided by the use of a second line of delivery rollers with a special device for twisting effect threads. Diagram.

TWISTING ZERO TWIST YARNS OF DACRON. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Dec. 1957. 7 p. Bull. D-91 (replaces Bull. D-57). Free. (467)

Suggestions for redrawing, downtwisting, and uptwisting are presented.

SPINNING NYLON CARPET YARNS ON THE AMERICAN WORSTED SYSTEM. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Dec. 1957. 5 p. Bull. N-102. Free. (468)

Processing 15 denier du Pont nylon tow using the Pacific Converter.

YARNS B 5

UTILIZATION OF THE THERMAL PROPERTIES OF CERTAIN THERMOPLASTIC FIBERS. J. L. E. Seidler and D. Young (Leeds Univ.). (Letter to the editor). J. Textile Inst. 48: T500-T502 (Dec. 1957). (469)

Details of construction and method of manufacture for some fancy yarns from thermoplastic fibers are given. At least one ply of thermoplastic yarn is twisted with at least one ply of a yarn substantially unaffected by heat. Photographs.

MECHANICS OF ELASTIC PERFORMANCE OF TEXTILE MATERIALS. PART 13. TORQUE DEVELOPMENT IN YARN SYSTEMS: SINGLES YARN. M. M. Platt, W. G. Klein, and W. J. Hamburger (Fabric Research Labs.). Textile Research J. 28: 1-14 (Jan. 1958). (470)

This paper is the first of a series which will deal with torque in textile systems. It is concerned principally with the analysis of torque developed in twisted singles yarns as created by (1) fiber bending, (2) fiber torsion, and (3) bending and torsion in combination. Equations are developed, using elastic theory, relating singles yarn torque to fiber elastic properties, fiber geometry, and singles yarn structure. Extension and application of the theory presented herein to torque in higher order textile structure, e.g. plied yarns and fabrics, will appear in subsequent parts. Diagrams. Graphs. Tables. 13 references.

STUDY OF THE ELONGATION OF WOOL KNITTING YARN UNDER TENSION. M. Suematsu (Gunma Univ.). J. Textile Machy. Soc. Japan 3: 29-35 (Dec. 1957). (471)

The relationship between the elasticity of wool fibers and that of knitting yarn is examined. Graphs.

FIBER SLIPPAGE IN SPUN YARN DURING TENSILE TESTING. S. Sayama and H. Yoshimura (Toyo Rayon Co. Ltd). J. Textile Machy. Soc. Japan 3: 9-16 (Dec. 1957). (472)

To study the effect of fiber slippage on yarn strength, rayon and nylon/rayon yarns were examined. It was found that: (1) there is no constant correlation between yarn strength and fiber slippage; (2) there is more slippage in crimped than in uncrimped yarn; (3) as twist number increases, slippage decreases; and (4) in nylon/rayon yarn containing less than 50% nylon, there is more slippage of nylon than rayon. Graphs. Tables.

PROCESSING OF METALLIC YARNS. Textile Recorder 75: 63-65 (Jan. 1958). (473)

The various basic types of Lurex yarns (butyrate Lurex, Lurex MM, and Lurex MF) are described, and the factors on which successful processing and finishing operations depend are pointed out. Methods for identification of the yarns are listed, and an analysis of 57 laundering and drycleaning complaints is presented in table form. Graph. Diagram.

NEW NYLON YARNS FOR STOCKING WELTS AND PANELS. British Nylon Spinners Ltd. Textile Weekly 57(2): 1719 (Dec. 13, 1957). (474)

The 40 denier yarn with 13 instead of 15 filaments will result in a welt with increased extensibility, and increase the number of welts per lb. of yarn from 40 denier by approximately 8 to 10%. Suggestions for knitting the new yarn on full-fashioned and circular hose machines are given. In addition, a 30 denier yarn with 25 turns per inch instead of the usual 30 is claimed to reduce snarling during knitting and also spiralling in finished hose.

TEX: UNIVERSAL YARN NUMBERING SYSTEM. P. Lennox-Kerr. Reply: A. W. Bayes. (Letters to the editor). J. Textile Inst. 48: P713 (Oct. 1957). (475)

The author suggests use of Nt as a symbol for tex count.

1957 DU PONT TIRE YARN TECHNICAL REVIEW. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington 98, Del. 1957. 48 p. Free. (476)

Papers presented in Akron, Ohio, May 9, 1957: Hot stretching, by D. E. Howe, p. 5-20; Reduction of cord content in nylon tires, by D. H. Heckert, p. 21-27; Utilization of higher strength rayons, by W. W. Ransom, p. 29-35; and Tire aesthetics, by J. M. Swanson, p. 37-48.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

CLEANLINESS IN TEXTILE MILLS. J. White. Textile Mfr. 84: 3-8 (Jan. 1958). (477)

A cleaning program for warping reeds, warping swifts, and sizing machinery is outlined, and sources of dirt during warping are discussed. Photographs.

PREPARATION OF HOMOGENIZED SIZES. K. Ramaszeder. Textile Mfr. 84: 19-23 (Jan. 1958). (478)

The principles and operation of the Manton-Gaulin high pressure homogenizer and the Tri-Homo homogenizer are presented, and cooked and homogenized starches are compared as to grain size, film strength, abrasion resistance, transparency, and depositing tendency. In general, the homogenized sizes were superior. It was found that they keep better, the viscosity of the solution can be kept at a steady level, cooking time and temperature are lower, and savings can be achieved in quantity of starch and in drying. Diagrams. Photomicrographs. Tables. Graphs.

MATERIAL HANDLING BETWEEN WINDING ROOM AND WEAVING SHED. H. Grahl. Textil-Praxis (English ed.) No. 4: 156-159 (Nov. 1957). (479)

The use of bobbin boxes at weft winding machines and methods for their transport to looms are described and illustrated.

FEATURES AND OPERATION OF MULLER Z6 BEAM-WARPING MACHINE. J. Bergsen. Melliand Textilber. (English ed.) 38, No. 4: 252-256 (1957). (480)

Details of operation and the construction of the drive, beam, beam hauling gear, and electrical stop motion are given. Photographs. Diagram.

BENNINGER WARPER. Textile Forum 15: 8-9 (Oct. 1957). (481)

Features of the Benninger sectional warper are briefly described. Photograph.

FRANZ MULLER NK3 SPLIT DRUM CHEESE CROSS WINDING FRAME. J. Bergsen. Textil-Praxis (English ed.) No. 4: 167-173 (Nov. 1957). (482)

The outstanding feature of this frame is the split drum made of bakelite. Construction and operation of the machine are explained in detail, as are the advantages of the bakelite drum. Photographs. Diagrams.

OILING DEVICE FOR WINDING DYED YARNS. U. Kühn. Textil-Praxis (English ed.) No. 4: 161-163 (Nov. 1957). (483)

An oiling device for the Schlafhorst Autocopser ASE carries small amounts of oil to bleached and dyed yarns, enabling them to be pirned at approximately the same speed as raw yarns with a 30-50% decrease in breakage. Photograph.

WEAVING C 2

MODERN JUTE MANUFACTURING PRACTICE: FACTORS WHICH INFLUENCE LOOM DESIGN AND SELECTION. S. A. G. Caldwell. Textile Mfr. 84: 10-12 (Jan. 1958). (484)

Following a description of the range of fabric structures representative of the requirements of a jute weaving plant, various types of broad and circular jute looms are described, and the advantages of the latter are cited. Photographs.

OPEN SHED JACQUARD WEAVING. Peter Walker Ltd, and James McMurdoe Ltd. Textile Merc. 137: 1029 (Dec. 20, 1957). (485)

Features and advantages of the new single cylinder machine for open shed jacquard weaving are briefly described. Photograph.

ELECTROMECHANICAL REVERSING MOTION FOR ASTRA GM LOOM. H. G. Füssel. Melliand Textilber. (English ed.) 38, No. 4: 258, 260 (1957). (486)

The electromechanical reversing device described facilitates and speeds up the reversal of the lay, without having to weave without weft, once the weft stop motion has stopped the loom. Photographs.

JET LOOM FROM SWEDEN. D. Brunnschweiler. Skinner's Silk & Rayon Record 32: 34-36 (Jan. 1958). (487)

The unusual design and principle of operation of the Maxbo shuttleless loom are outlined. Diagrams. Photographs.

LENTZ WOOL LOOMS. B. Hesse. Melliand Textilber. (English ed.) 38, No. 4: 262-265 (1957). (488)

Brief descriptions and illustrations of the Lentz low-built HBS II, HBS-M, and LF II wool looms. Photographs.

UNCONVENTIONAL LOOMS. PART 2. THE SULZER WEAVING MACHINE. G. Turton. Man-Made Textiles 34: 74-75 (Jan. 1958). (489)

The advantages and limitations of the Sulzer loom are evaluated. A table of recommendations for end and pick spacings and yarn counts for several types of fabrics is included. See abstr. 58 (1958) for part 1. Photographs. Diagram.

LOW-BUILT AUTOMATIC WORSTED LOOM. George Hattersley & Sons Ltd. Textile Recorder 75: 70-71 (Dec. 1957). (490)

Shedding and pick finding, automatic pirn changing motion, picking and shuttle checking, and cloth takeup and warp letoff motions of the Hattersley light standard worsted loom 375 are described. Photograph.

SCHEDULED INSPECTION INCREASES LIFE OF LOOM PICKERS. R. B. Pressley. Textile World 108: 72-73, 160 (Jan. 1958). (491)

Drop-box pickers are often the greatest single item loom repair cost. This cost can be reduced more than 50% by selecting the correct picker, inspecting all pickers three times a week, and keeping pickers adjusted and parallel. A checklist for a picker inspection schedule is given. Diagrams.

VALENTIN AUTOMATIC BUCKSKIN LOOM WEFT CHANGING UNIT. H. Sannig. Melliand Textilber. (English ed.) 38, No. 4: 256-257 (1957). (492)

Features of the Valentin circular battery type bobbin changing unit are described. Photographs.

HIGH SPEED RUSSIAN LOOMS OF UNUSUAL DESIGN. A. J. Steiger. Textile Recorder 75: 54-55 (Jan. 1958). (493)

Various new looms, including circular, disc, pneumatic, and multiple-shed types, are described in Invention in USSR, monthly organ of the USSR's Committee on Affairs of Invention and Discovery. The looms declared most promising among the new models are dealt with in this article and include (1) an electromagnetic ring or circular loom, (2) a two-sided vertical loom with cloth-forming profiled discs, and (3) a square shaft loom with special disc drum for cloth formation. Diagrams.

CAM-BOX HARNESS MOTION FOR ALL BASIC WEAVES. George Hattersley & Sons Ltd. Man-Made Textiles 34: 77 (Jan. 1958). (494)

In its standard form the cam-box motion provides for the production of weaves up to 10 shafts. While the mechanism is designed primarily for fitting to any low-built loom, its main application would be more suitable for single shuttle 2 x 1 box and 4 x 1 box automatic looms. Its features are described. Photograph.

MELLOR BROMLEY TK-7 FULL-FASHIONED HOSE MACHINE. Mellor Bromley Ltd. Textile Weekly 57(2): 1867-1868, 1872 (Dec. 27, 1957). (495)

The principal advantage over previous TK types is that the machine is operated in sets of 6 (30 heads) or 8 (40 heads) per knitter. Automatic welt turning is another new feature and an entirely new carrier drive enables the speed to be increased to 105 courses per minute throughout the hose. Additional technical data is included. Photograph.

OPEN-SHED CYLINDER-CONTROLLED TREADLE MACHINE. F. Möhwald. Melliand Textilber. (English ed.) 38, No. 4: 260-261 (1957). (496)

The treadle machine (W. Brock Söhne Maschinenfabrik) is linked directly with the loom. The metal cylinder is easily accessible and positively controlled by the pattern chain which consists of steel cards held together by steel clips. The pattern chain can easily and quickly be altered by means of a special type of pliers. The cards can be separated and used for any size and kind of pattern repeat. Construction and operation of the machine are described. Diagrams.

LUG STRAP DEVELOPMENTS. E. Michelen. Textil-Praxis (English ed.) No. 4: 160-161 (Nov. 1957). (497)

The Duromid plastic lug strap (manufactured by Albert Haag) consists of elastic plastic ribbons glued together and has a tensile strength 5 times higher than that of the best quality leather. The strap has a changeable cushion either of leather, plastic (cross-linked polyurethane), or rawhide. The type of cushion depends on the power of picking and also on the quality of wood of the picker stick. Photograph.

KNOTS ON WARP YARN: HAZARDS FACED BY WEAVER. C. M. Mehta. Indian Textile J. 68: 104, 112 (Nov. 1957). (498)

The effect of the number of knots on the efficiency of weaving is examined, and the correlation between warp elasticity and knot numbers is explained.

PNEUMATIC SHUTTLE CHECK MOTION. H. Osswald. Textil-Praxis (English ed.) No. 4: 173-175 (Nov. 1957). (499)

The main feature of this pneumatic shuttle check motion (manufactured by F. Tonnar GmbH) is that it adjusts automatically to the speed of the shuttle. Diagrams.

SHUTTLE GAME. Esso Oilways 24: 14-19 (Jan. 1958). (500)

Illustrated story of the construction, manufacture, and use of shuttles. Photographs. Diagrams.

DAMMAN MACHINE FOR STRIPPING AUTOMATIC LOOM PIRNS. Melliand Textilber. (English ed.) 38, No. 4: 256 (1957). (501)

With the Damman automatic machine, 4,000-5,000 pirns can be stripped in an hour using a charge of 200 pirns. Construction and operation of the machine are briefly described.

KNITTING C 3

CELLULAR CONSTRUCTION FOR UNDERWEAR. R. W. Mills. Hosiery Times 30: 78-79 (Dec. 1957). (502)

The method of producing web eyelet on circular latch needle machines is described. Diagrams.

WARP KNITTING OF FLAT NYLON YARN. Brit. Nylon Spinners Ltd. Textile Merc. 137: 1034, 1037 (Dec. 20, 1957). (503)

Methods employed in creeling, warping, and knitting specially prepared warp knitting yarn on 1-1/4 in. diameter metal tubes using a double taper build are described. The yarn is already treated and prepared in such a way that it is not necessary to redraw, or apply extra oils, lubricants, or other antistatic finishes.

WEAVING AND WARP KNITTING. D. Brunnschweiler. Textile Weekly 58(1): 46-48 (Jan. 3, 1958). (504)

Following a brief outline of the history of warp knitting, the principal stitches and machines are discussed. It is pointed out that compared with conventional weaving, warp knitting offers the possibility of lower production costs, especially as regards labor and yarn preparation since the sizing process is eliminated, although for fine counts warping would probably prove more expensive than pirn winding.

NARROW RIB TRIMMINGS. Textile Merc. 137: 951-953 (Dec. 6, 1957). (505)

On the Servo Stop MGP, four rib strips, separately selvaged, up to 1-3/4 inches wide, can be produced simultaneously at a production rate of approximately 80 yards per hour. Features of the machine are given.

ELEMENTS OF KNITWEAR DESIGN: KNITTED OPENWORK STITCH VARIATIONS IN PIECE-DYED GOODS. W. Davis. Hosiery Times 31: 58-62 (Jan. 1958). (506)

SAFETY AND CONTROL DEVICES ON FULLY AUTOMATIC FLAT KNITTING MACHINES. F. Eberbach. Melliand Textilber. (English ed.) 38, No. 4: 265-270 (1957). (507)

Stop motions for (1) yarn feed (e.g. yarn breakages, slubs in the yarn, knots, resistance encountered by the yarn in unwinding, and exhaustion of the supply packages); (2) interruptions in length of fabric; (3) a preset length of fabric; (4) the desired number of knitted pieces; (5) drive elements or gearings subjected to excessively heavy loads; (6) interruption in the pattern chain or cards; (7) abnormal resistance in the knitting cam; and (8) when the yarn becomes entangled or contains slubs, or when there is a defective needle in the region of the upper needle bed are cited, and no. 8 is discussed in detail. Diagrams. Photographs.

SEAMLESS NYLON HOSE LENGTH CONTROL. Fidelity Mach. Co. Hosiery Times 31: 31-32 (Jan. 1958). (508)

The problem of controlling the length and stretch of seamless hosiery is closely associated with that of creating constant and reliable tension in the yarns used, especially the very fine ones like 15 denier monofilament nylon. The principal object of the Fidelity yarn tensioner and compensator is to provide a well-controlled tension within the range of 0.3 to 4.0 g, depending upon denier and type of yarn, and secondarily to give a relatively high degree of compensation for changes in tension arising from variable yarn delivery conditions. Features and operation of the device are described. Photograph. Diagrams.

BENTLEY-WILDT RTR-A KNITTING MACHINE. Textile Weekly 58(1): 96, 98 (Jan. 10, 1958). (509)

The Bentley-Wildt rib circular knitting machine Model RTR-A has a gear operated needle stitch transfer mechanism, three-quality independent control for cylinder and dial, an electrical oiling unit, hand levers (instead of a hand-wheel), and inching buttons. Other features, as well as knitting possibilities, are described.

MORPUL TOP. Morpul, Inc. Hosiery Underwear Rev. 41: 78-79 (Jan. 1958). (510)

The tops of Morpul men's socks are a tubular fabric knit so as to allow the elastic yarn to slide freely through all the loops. The fabric is loose enough not to bind a man's legs, but the free-sliding elastic yarn will take up any slack so that the socks stay up neatly. Methods of making tops with a 1-by-3 rib and a 2-by-3 rib are briefly described, and minimum standards of construction for 84 and 108 needle socks are given. Photographs.

NEW TECHNIQUES FOR SOLVING HOSIERY-LENGTH PROBLEMS. J. H. Blore. Textile World 108: 82-89 (Jan. 1958). (511)

Factors causing length variations (yarn, machine, temperature, and humidity variations) are discussed. These problems are being solved by means of the several techniques described: new yarn winds (RTR and QRTR winds), larger pirns, yarn tension devices, stitch and yarn length controls, yarn meters, quality control systems (Marvel-Meter and Volumet system). Probable future developments are also briefly noted.

AGILON STRETCH YARN [IN SEAMLESS HOSIERY]. Deering Milliken Research Corp., P.O. Box 27, Pendleton, S.C. 1957. 23 p. $1.00. (512)

Detailed instructions are given for styling, knitting, and finishing seamless hosiery using Agilon stretch yarn. A simple method of controlling size during manufacture, as well as suggested standards for sizes, is also presented. Graphs. Photographs. Diagrams.

NEW KNITTING MACHINES. A. Kirkland & Co. Ltd. Textile Weekly 57(2): 1721-1722, 1726 (Dec. 13, 1957). (513)

Features of the FMK Fleximesh machine (with anti-bar modification to eliminate or reduce barring in stretch or bulk yarn knit fabrics) and the RM/B for knitting brassiere cups.

NEW KOHLER CROCHET MACHINES. Kohler & Co. AG. Textile Merc. 138: 12-14 (Jan. 3, 1958). (514)

A wide variety of fancy fabrics, trimmings, and smallwares of a utilitarian kind can be produced on the Kohler range of lace crocheting machines in four models: ST-10 with 10 weft rods; S-7 with 7 weft rods; ST/L10 with 10 weft rods; and ST/L7 with 7 weft rods. Features of the machines are described, and illustrations of typical products are included. Photographs.

DOUBLE JERSEY KNITTED FABRICS. Textile Recorder 75: 60-61, 65 (Dec. 1957). (515)

Double jersey fabrics are made on two sets of latch needles. While porous and possessing sufficient elasticity to promote wearer comfort, these fabrics are specially knitted and finished in order to give them a close resemblance to woven cloths. Construction and systems of knitting these fabrics are described. Diagrams. Photograph.

VERSATILITY OF WARP KNITTING. PART 1. EVER-WIDENING RANGE OF ATTRACTIVE FABRICS. J. B. Lancashire. Hosiery Times 31: 21, 25-27 (Jan. 1958). (516)

Methods of producing plain and figured elastic power nets and pique, satin-backed, coarse gauge, seersucker, pleated, and sandfly net textured fabrics are briefly explained. Photographs.

FABRICS C 4

CLOTH TERMS AND PARTICULARS: PILE FABRICS AND FANCY WEAVES. W. Middlebrook. Textile Mfr. 83: 617-619 (Dec. 1957). (517)

Names and descriptions of pile fabrics (corduroy, fustian, and velvet types) and fancy weaves (dobby and jacquard effects) are given. Diagrams.

POLYTHENE AS AN AIR FILTERING FABRIC. Textiles in Ind. 2: 108 (Nov./Dec. 1957). (518)

The Milbank polythene air filter is basically a layer construction of woven polythene fabric set into a frame of glass fiber reinforced resin. The properties and care of the filters are briefly described.

DIAL CONTROL REPLACES MANUAL OPERATIONS ON NEW SUPER TUFTER MACHINE. Super Tufter Machy Co. Textile Merc. 137: 908-909 (Nov. 29, 1957). (519)

The following can all be adjusted by means of dials: (1) the stroke of the needle, (2) the pile height, (3) the length of the stroke of both the loopers and the knives, (4) the number of stitches per inch, and (5) the rate of yarn feed.

EFFECT OF CONSTRUCTION ON CERTAIN STRESS-STRAIN PROPERTIES OF UNCOATED AND COATED FORTISAN FABRICS. J. F. Krasny, A. M. Sookne (Harris Research Labs.), G. D. Mallory, and J. K. Phillips (Goodyear Tire & Rubber Co.). Textile Research J. 27: 983-990 (Dec. 1957). (520)

The stress-strain properties of 135 systematically varied Fortisan filament fabrics were investigated before and after coating with rubber and after controlled flexing of the coated fabrics. In the uncoated fabrics, the highest tenacity was attained in a wide range of fabrics which were neither too dense nor too sleazy and which had few yarns of relatively high denier rather than many low denier yarns per inch. The structural tenacity of the coated fabrics followed roughly the same pattern, but was more sensitive to sleaziness. The range of coated fabrics which retained comparatively high structural tenacity after flexing was limited to those woven with the lowest denier yarns with a combination of a high number of yarns per inch and a rather open weave (2/2, 4/2, 5/1, or 4/4 twill) or a lower number of yarns per inch and a denser weave, such as 2/1 twill or 4 shaft sateen. Tables. 4 references.

PATTERN EFFECTS IN THE KNITTED STITCH. W. Davis. Hosiery Times 30: 45-52 (Dec. 1957). (521)

The principle of welt stitches for achieving raised patterns on flat and circular machines is explained. Diagrams. Photographs.

DYNEL OVERLAYS FOR REINFORCED PLASTICS. Textiles in Ind. 2: 103-104, 115 (Nov./Dec. 1957). (522)

Results of some recent tests on the rate of burning, water absorption, resistance to abrasion, acid, and alkalis, and dielectric properties of glass fiber reinforced laminates with Dynel overlays are presented. Tables. Photographs.

WEAVING TROPICAL WORSTEDS. E. P. Schremp. Textile World 108: 90-91, 166 (Jan. 1958). (523)

Defects caused by improper fabric design and incorrect reed size, as well as the factors responsible for warp floats and kinks, are discussed. Photographs.

URETHANE IN CLOTHING: WARMTH WITHOUT WEIGHT. R. A. Singer. Modern Textiles Mag. 39: 54-56 (Jan. 1958). (524)

Urethane foam is a lightweight, porous, insulating material that is warm, drapeable, and strong. It is nontoxic, durable, and moth and mildewproof. It is easily cleaned and easily manufactured. As a result it is being widely used as lining material for all types of clothing, as well as for sleeping bags, shoulder pads, flying suits, etc.

EXPANDED VINYLS IN SPECIAL PURPOSE GARMENTS. T. G. Tompkins. Modern Textiles Mag. 39: 53, 56 (Jan. 1958). (525)

The properties of light weight, nonabsorbency, buoyancy, and low K factor are responsible for the growing use of U.S. Ensolite (an expanded closed cell vinyl material) for interlinings, as well as in garments or products requiring shock absorbency.

PLASTIC FOAMS: A NEW TEXTILE MATERIAL. J. E. Lynn. Modern Textiles Mag. 39: 49-52 (Jan. 1958). (526)

This discussion of the growing importance of foams for textile applications points out that while much of the discussion is concerned with the insulation value of foams, foams also are valuable as resilient protective padding against injury to live and inanimate objects and are the basic materials for a variety of useful products. For textile use the foaming resins of most interest are Neoprene, vinyl chloride, modified vinyl chloride, and urethanes. Information on production methods, cost, properties, and applications is included. Tables. Photographs.

WHAT'S WHAT IN "WASH AND WEAR". Consumer Repts. 23: 81-86 (Feb. 1958). (527)

A review of the development of wash-and-wear, with reference to its origins, problems that have faced it, and some of its successes and failures. Reports are made on use-tests of wash-and-wear dresses and wash-and-wear cotton shirts.

USE OF RUBBER THREADS IN TEXTILES. PART 1. HISTORY. PART 2. APPLICATIONS. G. H. Lunge and W. F. Ault. J. Textile Inst. 48: P729-P738 (Nov. 1957). (528)

IMPORTANCE AND PROPERTIES OF WASH AND WEAR FABRICS. J. L. Barach. Can. Textile J. 75: 49-53 (Jan. 10, 1958). (529)

Discussion includes consideration of the commercial importance of wash and wear fabrics, their usefulness, the fiber and fabric properties contributing to wash and wear performance, and a description of fabrics currently being sold and promoted as wash and wear. Graph. Tables.

VINYL FIBERS IN THE CARPET INDUSTRY. C. Froger (Soc. Rhovyl). Textile Merc. 137: 1027-1028, 1042 (Dec. 20, 1957). (530)

Because of their noninflammability and lack of shrinkage, PVC fibers have been found particularly valuable for carpets. Sample carpet constructions using Fibravyl and Thermovyl fibers are described, and their unusual properties discussed.

DESIGN IN WOVEN STRUCTURE. PART 60. PLANNED COLOR-AND-WEAVE EFFECTS (continued). D. C. Snowden. Wool Rev. 31: 28-29 (Dec. 1957). (531)

DESIGN IN WOVEN STRUCTURE. PART 61. FIGURING IN STEEP TWILL WEAVES. D. C. Snowden. Wool Rev. 31: 31, 33 (Jan. 1958). (532)

BLANKETS: SPECIAL FIBERS VS WOOL. Consumer Repts. 23: 68-73 (Feb. 1958). (533)

A report on 20 all-synthetic blankets, 6 wool/synthetic blends, and 4 all-wool blankets used as controls. At least 3 samples of each of the 30 blankets were tested for a wide variety of performance factors, with the major emphasis on those contributing to warmth and durability. The blankets are described and rated for quality.

APPLICATION OF SOME MANMADE FIBERS TO CARPETS. J. A. Kirby (Courtaulds Ltd). Textile Merc. 137: 941-945, 956 (Dec. 6, 1957). (534)

Emphasis is on cost, soiling, resiliency, and wear resistance in this discussion of the use of Fibro/wool, Fibrolane/wool, Fibrolane/nylon, Fibro/Fibrolane, and all Fibro yarns as pile yarns. In addition, the use of such specialty yarns as bulky spun and kinky Fibro blends, Courlene retractable yarns, continuous filament viscose bulky yarn, and acetate bulked yarns is discussed.

FASHION FABRICS IN WOOL. Textile Merc. 137: 946-948 (Dec. 6, 1957). (535)

Some soft handling bouclé fabrics with decorative yarn surface interest are described and illustrated.

UNUSUAL METHOD OF DEVELOPING WEAVES. PART 2. D. C. Snowden. Man-Made Textiles 34: 72-73 (Jan. 1958). (536)

The use of the quartering method for a square repeat on an odd number of threads and on a repeat on a different number of ends and picks is described and illustrated. See abstr. 82 (1958) for part 1.

TUFTED CARPETS IN ENGLAND. P. Abbenheim. Textile Inds. 122: 82-85 (Jan. 1958). (537)

Types of carpets and the machinery used in their manufacture are reviewed.

CLOTH TERMS AND PARTICULARS: SILK FABRICS. W. Middlebrook. Textile Mfr. 84: 16-17 (Jan. 1958). (538)

Origins and descriptions, with the ends and picks, of chiffons, gauzes, bolting cloth, China crepe, levantine, ninon, and voile fabrics.

FINISHING AND CHEMICAL PROCESSING D

FINISHING DEVELOPMENTS DURING 1957. Textile Weekly 57(2): 1807-1808 (Dec. 20, 1957). (539)

Includes references.

QUALITY CONTROL IN THE WET PROCESSING MILL. F. Rawicz. Textile Forum 15: 16-17, 28 (June 1957). (540)

Quality control methods used in desizing, scouring, bleaching, and dyeing are briefly reviewed.

FINISHING AND DYEING OF DYNEL FABRICS. Fibres 18: 397-399 (Dec. 1957). (541)

Specific procedures for pleating Dynel fabrics, dyeing Dynel/wool, dyeing and resin finishing Dynel/rayon, processing bulk Dynel, and knitting, bleaching, dyeing, and finishing bulk Dynel/cotton are given.

DYEING AND FINISHING ORLON STAPLE AND TOW. E. I. du Pont de Nemours & Co., Textile Fibers Dept., Wilmington, Del. Dec. 1957. 46 p. Bull. OR-82 (replaces Bull. OR-51). Free. (542)

DYEING AND FINISHING DEVELOPMENTS IN ORLON SOCKS. L. Bidgood, Jr. (E.I. du Pont de Nemours & Co.). Hosiery Underwear Rev. 41: 69-75, 84-85 (Feb. 1958). (543)

ALPHABETICAL LIST OF NEW PRODUCTS DEVELOPED SINCE NOVEMBER, 1956. Am. Dyestuff Reptr. 46: 1008-1009 (Dec. 30, 1957). (544)

Product information received too late for inclusion in the Annual Processing Review issue of December 2, 1957, is listed.

DYEING AND FINISHING DEVELOPMENTS IN THE CARPET TRADE. R. C. Cheetham (Courtaulds Ltd). Textile Merc. 137: 1071-1072 (Dec. 27, 1957). (545)

Brief summary of developments in package dyeing, oiling and scouring, staple dyeing, continuous dyeing, sizing, and mothproofing.

NOVEL MATERIALS FROM ISOCYANATES. Imp. Chem. Inds. Dyer 118: 899-900 (Dec. 6, 1957). (546)

Suprasecs SF, D, AC, and F are used in conjunction with various polymeric reactants to produce flexible foams, rigid foams, soft and hard rubbers, lacquers, textile coatings, electrical insulating compositions, and adhesives. Their properties are described briefly.

FINISHING AND COATING INDUSTRIAL FABRICS. Canvas Products Rev. 33: 29-34, 39-43 (Jan. 1958). (547)

The techniques of cotton duck finishing, techniques of the lamination process, and techniques used in fabric coating. Photographs.

APPLICATION OF FLUID BEDS TO TEXTILE PROCESSING. F. G. Audas, C. G. Badcock, W. McNabb, and J. A. Wilson. J. Textile Inst. 48: P767-P776 (Dec. 1957). (548)

There are many textile processes in which either large amounts of heat must be transferred to fabric or in which accurate and even temperature control is desirable. Early in 1954, tentative experiments were started by the Brit. Rayon Research Assoc. to investigate the use which could be made in textile processes of the high heat-transfer characteristics of fluid beds. It became apparent that the potential use of fluid beds for drying fabrics, resin baking, printing, certain methods of dyeing, and other processes, was very great indeed, and some of the work illustrating this is described in this paper. Tables.

CHEMICAL PROCESSES D 1

USE OF HYPOCHLORITES IN BLEACHING. Textile Mfr. 83: 637-639 (Dec. 1957). (549)

These notes on the application of hypochlorites in modern bleaching techniques include observations on the use of chlorine products in bleaching cottons and rayons, the use of hypochlorites prior to kiering, pretreatment of grey cotton with hypochlorites, continuous hypochlorite bleaching, hypochlorite bleaching at elevated temperatures, cold hypochlorite/chlorite bleach, hypochlorite/peroxide bleach, grey bleaching with hypochlorites prior to peroxide bleach, peroxide-hypochlorite bleach for cotton knit goods, comparative costs of peroxide and hypochlorite bleaching, after-treatment of oxycellulose for prevention of further damage to cloth, action of metals on hypochlorite, and the use of hypochlorites in bleaching wool with peroxides. 8 references.

EFFECT OF PIGMENTS ON COATED CANVAS EXPOSED TO WEATHER. Canvas Prods. Assoc. Intern. Canvas Products Rev. 33: i-viii (Jan. 1958); 30-31, 46-49 (Feb. 1958). (550)

In part 1, white, extender, metallic, iron oxide, and green pigments were studied to determine their effect on the weather durability of duck. Part 2 considers red and maroon, blue, black, yellow and orange, and miscellaneous pigments. Effects ranging from near perfect protection to complete destruction of the coated canvas sample in the 20 month weathering period were noted. Graphs. Photographs. 26 references.

VAPOR PHASE METHOD FOR PREPARATION OF POLYACRYLONITRILE COATED COTTON YARN AND PHYSICAL PROPERTIES OF THE PRODUCT. C. H. Haydel, H. J. Janssen, J. F. Seal, H. L. E. Vix, and E. A. Gastrock (Southern Regional Research Lab.). Textile Research J. 27: 975-982 (Dec. 1957). (551)

Acrylonitrile vapors were polymerized within and upon the individual fiber surfaces of scoured cotton yarns to yield coated products having new and interesting properties. The treated products have materially increased breaking strength, particularly when the polymer is applied to prestretched yarns. Other interesting properties include excellent resistance to rot, good resistance to flat abrasion and to acid, high frictional characteristics between adjacent yarns, and low density. The yarns are, however, low in flex abrasion resistance. These polyacrylonitrile coated yarns can be prepared with essentially the same equipment and procedures as required for the vapor phase cyanoethylation of cotton. A different catalyst is employed. Diagrams. Photomicrographs. Graphs. Tables. 14 references.

OBSERVATIONS ON SOURS AND SOURING IN LAUNDERING, WETCLEANING, AND CARPET CLEANING. Canadian Research Inst. of Launderers & Cleaners. Tech. Bull. 12: 1-3 (Nov./Dec. 1957). (552)

The purpose of souring and the composition of sours are discussed.

SOLVENT SCOURING: EXAMINATION OF A NEW PROCESS. G. L. Atkinson. Wool Record 93: 148-149 (Jan. 16, 1958). (553)

Scouring average to high class wool piece goods with trichlorethylene in an experimental machine is described.

CARBONIZING INVESTIGATIONS. PART 4. INDUSTRIAL CARBONIZING TRIALS TO ASSESS THE PROTECTION OF WOOL BY SURFACE ACTIVE AGENTS ADDED TO THE ACID. W. G. Crewther and T. A. Pressley (Wool Textile Research Labs., CSIRO, Australia). Textile Research J. 28: 67-72 (Jan. 1958). (554)

In a series of trials in four carbonizing mills, the addition of a nonionic surface active agent to the sulfuric acid bowl resulted, in each experiment, in an increased yield of carbonized wool and, on spinning, increased yarn strength. In a similar trial with combing wool, the addition of nonionic surface active agent to the acid used for carbonizing resulted in improved gilling and combing. The amount of acid taken up by the wool was increased by this addition, whereas the water content was decreased; this facilitated drying of the acidified wool. Tables. 8 references. Part 1 of this series, which is a review of the literature on carbonizing by D. H. Simmonds, was published as Technical Paper No. 2 of the Wool Textile Research Labs. For parts 2 and 3 see abstr. 1610 and 1611 (1957).

CARBONIZING INVESTIGATIONS. PART 5. EFFECT OF WATER CONTENT ON THE ACTION OF SULFURIC ACID ON WOOL: THE SIGNIFICANCE OF TESTS FOR DAMAGE. W. G. Crewther and T. A. Pressley (Wool Textile Research Labs., CSIRO. Australia). Textile Research J. 28: 73-77 (Jan. 1958). (555)

The nature of the reaction of sulfuric acid with wool at 105° C depends on the water content of the acid-wool system. When wool moistened with dilute sulfuric acid is heated in a closed system to prevent loss of the water present (approximately 40% of the dry weight of the wool), there is a slow decrease in tensile strength and a marked increase in alkali solubility and, after pretreatment with alkali or alkaline caprate at 30° C, in digestibility by trypsin. By contrast, when the acid-wool is dehydrated before heating there is a rapid decrease in tensile strength but little change in alkali solubility or trypsin digestibility. The addition of a surface active agent to the acid prevents loss of strength of the wool, particularly under anhydrous conditions, and it also reduces deterioration of color. It is concluded that sulfuric acid can attack wool by at least two different reactions and that there is little direct relationship between alkali solubility and fiber strength. Tables. Graphs. 13 references.

STUDIES ON DRY CARBONIZATION WITH HYDROCHLORIC ACID. H. Sanuki and T. Iwakata. J. Textile Machy. Soc. Japan 3: 36-41 (Dec. 1957). (556)

In order to study the mechanism of dry carbonization with hydrogen chloride, the effects of the dry system on cotton cloth were studied. The mechanisms of degradation of cellulose in wet and dry carbonization were found to be similar, and there was little difference in the effects of the two carbonizing treatments. Tables. Graphs. 12 references.

SOME RECENT DEVELOPMENTS IN COTTON FINISHING. J. G. Evans. Melliand Textilber. (English ed.) 38, No. 4: 278-282 (1957). (557)

In this review of trends in decorative and functional resin finishes for cotton, the author discusses the Everglaze Tudor decorative finish (puckered effects), as well as functional finishes for minimum ironing and stain, water, and flame resistance.

PHYSICAL PROPERTIES OF FIBERS AND YARNS OF PARTIALLY ACETYLATED COTTONS. R. S. Orr, L. C. Weiss, A. W. Burgis, and J. N. Grant (Southern Regional Research Lab.). Textile Research J. 27: 966-975 (Dec. 1957). (558)

Samples of Deltapine, Rowden, and Stoneville cottons were partially acetylated as bulk cotton and as untreated 14/3 yarns to acetyl contents ranging from 9 to 26%. Breaking loads and elongations at break of single fibers, fiber bundles, and yarns were decreased by the partial acetylation up to about 17%, but showed a tendency to increase above 20% acetyl content. Moisture conditions had less effect on tenacity of yarns of 25% than on those with lower acetyl content. Tenacities of the acetylated yarns when wet were slightly lower, and when desiccator-dried were higher than those of the untreated controls. Below 15%, the relation of density to acetyl content was consistent with calculations based on the preferential reaction of amorphous cellulose in the initial stages of the reaction. Resistance to heat degradation increased with acetyl content up to 25% acetyl. The pH of the water used to rinse the reacted yarns was an important factor influencing heat degradation. Maximum retention of strength occurred when the wash water was in the pH range of 10-11. A slight but consistent difference in heat resistance of the partially acetylated cottons was associated with different varieties. Tables. Graphs. 26 references.

PHYSICAL PROPERTIES OF CHEMICALLY MODIFIED COTTONS. PART 4. EFFECTS OF PARTIAL CARBOXYMETHYLATION. J. N. Grant, A. W. McDonal and G. C. Humphreys (Southern Regional Research Lab.). Textile Research J. 28: 60-66 (Jan. 1958). (559)

Yarns from six cottons selected for their widely different inherent fiber characteristics were partially carboxymethylated to a degree of substitution averaging about 0.125 while held at their original length. Moisture regain, linear density, breaking load, and elongation at break, measured on the fibers and/or yarns, were increased by the modification. Fiber cellulose density and length decreased. Samples of the different cotton varieties were found to differ in their response to the treatment with interrelationships existing between the linear density, degree of substitution, and moisture regain. Changes in fiber properties in the caustic treatments of cottons, such as carboxymethylation and mercerization, were found to be similar when the tensional conditions during treatment were essentially equal. Tables. Graphs. 18 references.

WATER-REPELLENT IMPREGNATION AND ITS COMBINATION WITH RESIN FINISHES. H. Ruile. Melliand Textilber. 38, No. 3: 313-319 (1957). In German. Through BCIRA 37: 293 (1957). (560)

The principles of waterproofing and resin finishing are reviewed, with special reference to their combined action on the fabric properties when applied simultaneously.

EPOXY RESINS FIND A PLACE IN FINISHING TEXTILE MATERIALS. B. C. M. Dorset. Textile Mfr. 84: 36-40 (Jan. 1958). (561)

Following a discussion of the advantages, structure, and reactivity of the epoxy resins, their application to cotton and viscose rayon is described. Their effect on crease resistance and tensile strength is compared with that conferred by urea- and melamine-formaldehyde resins. Tables. Graphs.

CHEMICAL DAMAGE IN WOOL. PART 3. EFFECTS OF AQUEOUS CHLORINE. W. H. Houff, C. J. Wills, and R. H. Beaumont (F. C. Huyck & Sons). Textile Research J. 27: 961-965 (Dec. 1957). (562)

A study of the wet properties of wool exposed to low concentrations of aqueous chlorine under a variety of conditions is reported. Fiber stress-strain data are presented showing the effects of variations in the concentration of chlorine, pH, temperature, time of exposure, and agitation. Comparisons of cystine-cysteic acid percentages as interpreted from paper chromatograms are presented. Alkali solubilities of chlorine-damaged samples were determined, and their relation to other properties is noted. It is concluded that very low concentrations of aqueous chlorine seriously decrease the usefulness of wet wool fibers under conditions similar to those found in many papermaking and bleaching operations. Graphs. Tables. 13 references.

TEXTILE CHEMICALS AND AUXILIARIES, WITH SPECIAL REFERENCE TO SURFACTANTS AND FINISHES. 2d ed. H. C. Speel and E. W. K. Schwarz, editors. N. Y., Reinhold, 1957. 545 p. $13.50. (563)

This is the second, revised edition of a compilation of descriptive material pertaining to all commercially important chemicals used in the processing of textiles. Information is given under the following chapter headings: the physical and chemical nature of fibers; preparation of fibers and fabrics; chemical aspects of textile dyeing and printing; technology of pigment application; textile finishing; fabric stabilization; coated fabrics; felts and nonwoven fabrics; water; fats, oils, and waxes; starches, gums, and glues; solvents and other organic chemicals; surfactants; soap; sulfated oils and fats; anionic surfactants (sulfates, sulfonates, and others); nonionic condensates; cationic finishing agents; synthetic resins; cellulose finishes; water-resistant treatments; flameproofing; mothproofing and mothproofing agents; and miscellaneous auxiliaries and economics.

COMBINED WATERPROOFING AND ROTPROOFING FINISHES. H. Fuhr. Textil-Praxis (English ed.) No. 4: 177-182 (Nov. 1957). (564)

The main factors causing mildew attack on cellulosic textiles (moisture content, temperature, absence of light, pH value of the impregnated fabric, and fat and wax content of the finishing agent) are discussed and a multiple-bath or heavy impregnating method is described, combining impregnations of the treated material with alumina and copper salts. Reference is also made to one-bath methods (the bath containing waterproofing components and rot-inhibiting chemicals), impregnation with polyisocyanates, and use of copper naphthenate emulsions, cuprammonium solutions, etc.

ANTISTATIC PROCESS FOR ARNEL TRIACETATE. R. E. Lacy and G. C. Ward (Celanese Corp.). Can. Textile J. 75: 49-55 (Jan. 24, 1958). (565)

Permanent antistatic properties are imparted to fabrics made from Arnel by a controlled skin saponification process (S antistatic process) which forms a thin layer of regenerated cellulose around the Arnel fiber. The cellulosic skin, because of high moisture absorbency, increases the surface conductivity of the fiber and fabric, thus allowing generated static electricity to quickly dissipate. This paper discusses the approach and methods used by Celanese in the development of the S antistatic process for Arnel fabrics. Graphs. Photomicrographs. Tables. 7 references.

EFFECT OF SILICONE SOFTENERS ON RESIN-TREATED COTTONS. B. G. Simpson (Dow Corning Corp.). Am. Dyestuff Reptr. 46: P991-P998 (Dec. 30, 1957). (566)

Following an explanation of the structure of silicone softeners and their function, the effects of the various silicone and organic softeners on the physical properties of cotton treated with typical resin formulations are compared. The majority of this work is with three typical resin combinations: blend of dimethylol ethylene urea (DMEU) and methylated methylol melamine; blend of DMEU and acrylic resin; and blend of DMEU and polyvinyl alcohol (PVA) using three of the more widely used organics: one cationic, one anionic, and one nonionic. It was found that the silicones are generally superior to the organic softeners in tear-strength values, slightly inferior in tensile-strength and flex-abrasion values, definitely superior in wrinkle-recovery values, superior as a sewing lubricant, and make the greatest all-over improvement in the fabric's physical properties when used with the DMEU-melamine finish, and the least improvement when used with the DMEU-PVA finish. Graphs. Tables. 4 references.

PROBAN: DURABLE ANTI-FLAME FINISH FOR FABRICS. Fibres 18: 400-401 (Dec. 1957). (567)

The essential constituent of the Proban finish is tetrakis-hydroxymethyl phosphonium chloride (THPC). This is added to an amineformaldehyde resin precondensate and the fabrics are impregnated in a single-bath process, and dried and baked, followed by an alkaline scour. The formation of insoluble resins within the fiber structure gives the permanent anti-flame effect. Proban confers drip-dry, minimum-iron properties, does not impair the handle of fabrics, gives increased resistance to shrinking during laundering or drycleaning, and is resistant to attack by bacteria, fungi, and mildew. Photographs.

NEW FINISHES ON COTTON. N. F. Getchell. J. Home Econ. 50: 12-14 (Jan. 1958). (568)

Functional (wrinkle-resistant and minimum care) and aesthetic finishes achieved with thermosetting resins are briefly discussed from the consumer viewpoint. Some pointers on care and laundering are included.

CONTINUOUS DESIZING OF COTTON. W. Graeser. Melliand Textilber. (English ed.) 38, No. 4: 270-272 (1957). (569)

Continuous desizing on the drum steamer Reactor (A. Monforts Maschinenfabrik) is described. Photograph. 3 references.

DYEING AND PRINTING D 2

DYEING ACRYLIC FIBERS. B. Kramrisch. Textile Mfr. 83: 644 (Dec. 1957). (570)

Summary of lecture on the dyeing of Orlon 42, Courtelle, Acrilan, Acrilan/wool, Acrilan/viscose, and blends of Orlon 42 and Courtelle.

BEHAVIOR OF CIBALAN SALT S WHEN DYEING WOOL AND POLYAMIDE FIBERS WITH CIBALANS. R. Casty. Ciba Rev. 11: 43-45 (Nov. 1957). (571)

SHADES FOR ORLON ACRYLIC FIBER BLENDS. N. Carmichael and A. P. Zinnato (du Pont Co. of Canada Ltd). Can. Textile J. 75: 54-58 (Jan. 10, 1958). (572)

Analysis of dyeing techniques for achieving different shades on Orlon/wool, nylon, rayon, or cotton blends.

WOOL/NYLON UNIONS WITH NATIONAL LANAMID AND CHROMOLAN DYES. J. E. Loughlin (Allied Chem. & Dye Corp.). Dyestuffs 42: 121-126 (Dec. 1957). (573)

The dyeing of wool/nylon blends with premetalized dyes is discussed. Tables.

MULTICOLOR DYEING OF WOOL FROM SINGLE BATHS. A. J. I. Harding. Textile Weekly 57(2): 1858 (Dec. 27, 1957). (574)

The Maifoss dyeing technique enables two or more contrasting colors to be dyed on wool (whether raw or made-up) in a single bath. Basically, the chemical process selects certain elements of the wool fiber and prepares resist or attract sites on which the dyestuffs work. The chemical action takes place just before the dye becomes attached. The dyed wool has a soft hand.

MILL PROCEDURES FOR DYEING AND FINISHING ORLON. F. G. Parker. Textile Mfr. 84: 41-42 (Jan. 1958). (575)

Information on the dyeing of Orlon rawstock, methods for tow and top, skein dyeing of high-bulk yarns, piece dyeing, and finishing of yarn and tow dyed sweaters, men's hose, and fine gauge jersey.

CONTINUOUS DEVELOPMENT OF DYEINGS WITH DIAZAMINE DYESTUFFS. R. Kern (Sandoz Ltd). Melliand Textilber. (English ed.) 38, No. 4: 302, 304 (1957). (576)

A method for the continuous diazotization of Diazamines is described, and a list of dyes which show equally good washfastness in this continuous process as they do when diazotized and developed by conventional methods is given.

TESTING OF MULTIPLE VARIATIONS BY "OMBRE-MIXING". R. K. Smejda. Melliand Textilber. (English ed.) 38, No. 4: 294-298 (1957). (577)

The use of a three dimensional box for determining optimum concentrations of mixtures (e.g. dyes), as well as their cost, in a reduced number of tests, is described and illustrated. Diagrams.

HISTORICAL NOTES. PART 14. SPANISH RED. S. M. Edelstein (Dexter Chem. Corp.). Am. Dyestuff Reptr. 47: 1-8 (Jan. 13, 1958). (578)

DYEING CHARACTERISTICS OF WOOL DYES. H. R. Hirsbrunner (Geigy Co. Ltd). Textile Merc. 138: 16-18 (Jan. 3, 1958). Dyer 119: 23, 24 (Jan. 3, 1958). (579)

Methods for determining the rate of strike of acid and premetalized dyes possessing low migration are described. Graph.

BRILLIANT GREEN SHADES BASED ON NAPHTOL AS PRODUCTS AND PHTALOGEN DYESTUFFS. H. Thaler. Melliand Textilber. (English ed.) 38, No. 4: 272-274 (1957). (580)

To obtain a brilliant green, with excellent fastness, topping with Naphtol AS yellow should follow Phtalogen predyeing. Suitable procedures and combinations are outlined.

PHOTOCHEMICAL STABILITY OF DYES IN THE SOLID STATE. Nature 180: 1349-1350 (Dec. 14, 1957). (581)

Several aminoanthraquinone compounds purified by repeated recrystallizations from ethyl alcohol were compared. Polymer films were dyed with these compounds from an alcohol solution, and solid deposits upon small quartz plates were prepared with an Edwards high-vacuum coating unit. 5 references.

IMPROVING THE WETFASTNESS OF DIRECT COTTON DYES. A. J. Hall. Textile Recorder 75: 66-67 (Jan. 1958). (582)

Most of the textile auxiliaries for improving wetfastness of direct dyeings on cotton and rayon are of the quaternary ammonium type, although a limited number are based on sulfonium and phosphonium compounds. They are, however, all related in so far as they contain their nitrogen, sulfur, or phosphorous atoms in the highest valency state so that they may be reactive with direct cotton dyes and capable of combining with them to form more complex and less water-soluble compounds. The mechanism of action of these compounds and the use of copper salts for overcoming their adverse effects on lightfastness are discussed. It is pointed out that thus far the bond formed between the dye anion and the auxiliary cation is evidently not sufficient to withstand the dispersing effect of hot detergent liquors containing soap. Formulas. Graphs.

COLORFASTNESS TO LIGHT. K. McLaren. (Letter to the editor). Am. Dyestuff Reptr. 47: 32 (Jan. 13, 1958). (583)

References are given to articles giving data on the correlation of radiation with moisture content on fading. 5 references.

ALGINATES IN TEXTILE PRINTING. G. Torinus. Dyer 118: 897-899 (Dec. 6, 1957). (584)

The manufacture, structure, and properties of alginates are discussed, and the use of the Norwegian Lamitex and Protakyp in printing pastes is described in detail.

DYEING WOVEN AND KNITTED FABRICS WITH CIBACRON COLORS BY THE EXHAUSTION METHOD. M. Peter, P. Ulrich, and J. Renggli. Ciba Rev. 11: 47 (Nov. 1957). (585)

CONTINUOUS DYEING OF LOOSE STOCK. Fleissner & Sohne. Textile Merc. 137: 1039-1040 (Dec. 20, 1957). Dyer 119: 27, 28 (Jan. 3, 1958). (586)

Technical features and operation of the Fleissner system for the continuous dyeing of loose cellulosic fibers with Procion dyes are described. Photographs.

WHY HIGH TEMPERATURE DYEING. J. J. Iannarone, Jr. (E.I. du Pont de Nemours & Co.). Can. Textile J. 74: 47-55 (Dec. 27, 1957). (587)

After an explanation of the advantages and general aspects of high temperature dyeing, the following are discussed: factors involved in the aqueous dyeing of Dacron, Orlon, nylon, and the cellulosic fibers; the Thermosol, fluid bed, molten urea, and solvent non-aqueous procedures; and high temperature dyeing machinery for rawstock, yarn, and fabrics. Tables listing dyes suitable for high temperature dyeing of Orlon, nylon, and wool, direct and vat dyes with maximum stability at high temperatures, and disperse dyes suitable for the Thermosol process are included. Photographs. 43 references.

UNEVEN DYEING OF WOUND PACKAGES. Textil-Praxis (English ed.) No. 4: 183-188 (Nov. 1957). (588)

The possible causes of dye variation in package dyeing are critically examined in the form of a question and three answers.

DYEING WITH DIRECT DYES ON THE PADDING MACHINE. K. Dickmanns. Textil-Praxis (English ed.) No. 4: 189-192 (Nov. 1957). (589)

This article deals primarily with dye fixation on the jig by means of sodium chloride, as opposed to the continuous padding and steaming process. Suggestions, recommendations, and results from point of view of practical experience are included. Diagrams. Tables.

MICROFIX PROCESS FOR THE DYEING OF PIECE GOODS. G. Sulzer and T. Weber. Ciba Rev. 11: 37-43 (Nov. 1957). (590)

Microfix colors, a selection of exceptionally fast and finely dispersed pigments, are fixed on the fiber with the aid of Microfix Binders I, II, and III, a novel and efficient composition of synthetic resins making for washfastness of the dyeings. The dyebath contains sodium alginate as thickener, ammonium sulfate, which acts as catalyst for the synthetic resin binders, ammonia as stabilizer, and water as a diluent. The fabric is padded with this liquor, then dried, and finally cured. Tables. Photomicrographs.

RECENT DEVELOPMENTS IN CARPET DYEING. W. J. Wygand (E.I. du Pont de Nemours & Co.). Am. Dyestuff Reptr. 46: P987-P990 (Dec. 30, 1957). (591)

Recent developments in dyeing procedures for stock, yarn, and piece goods are described. The use of the neutral-dyeing premetalized dyes has contributed largely to the success of the continuous rawstock dyeing process, pack-dyeing procedures for both wool and nylon, and to the development of piece-dyeing procedures by pad-steam processes. The du Pont Flowstock process is an example of the refinement of the continuous rawstock dyeing process. 12 references.

NEW TECHNIQUES IN SCREEN PRINTING. K. Prett. Melliand Textilber. (English ed.) 38, No. 4: 274, 276 (1957). (592)

Experience using the roller printing machine developed by Kerag AG, Switzerland, is reported.

MECHANICAL PROCESSES D 3

GEOMETRICAL ANALYSIS OF MOIRE CONSTRUCTION AND PROCESSING. T. Takeuchi (Sakai Textile Ind. Co. Ltd). J. Textile Machy. Soc. Japan 3: 61-65 (Dec. 1957). (593)

The ordinary method of moire processing is to put together two fabrics of proper warp and weft density after passing one of them between two rollers under heavy tension, and to press them at a high temperature. This study analyzes the construction of the weft in relation to the warp in the individual fabrics in order to make possible the prediction of the final pattern. Diagrams. 2 references.

FABRIC DEFECTS IN WOOL FINISHING. PART 2. DRY FINISHING. R. G. Stoehr (Botany Finishing Co.). Textile Inds. 122: 71-74 (Jan. 1958). (594)

Causes of defects due to tentering, shearing, pressing, and decating are examined, and means for correcting them are described. Photographs. See abstr. 97 (1958) for part 1.

CALENDERS: SOME RECENT IMPROVEMENTS IN MACHINE DESIGN. Mather & Platt Ltd. Textile Merc. 137: 1075 (Dec. 27, 1957). (595)

New developments in loading methods, bearing technique, and drives are briefly summarized.

DRYING D 4

RECENT FINDINGS CONCERNING THE DRYING OF TEXTILES. W. Ziemba. Zollikofer & Co. AG, St. Gallen, Switzerland. 1955. 67 p. In German. Through BCIRA 37: 196 (1957). (596)

The drying theories of J. M. Preston and A. Bennett and of M. J. Coplan are compared and the author's own experiments on wool and cotton fibers are described, from the results of which it is possible to determine, by means of simplified formulas, the period of drying and the temperature curve. Graphs. Tables. Diagrams. 79 references.

TESTING AND MEASUREMENT E

STATISTICAL AND GEOMETRIC-ANALYTICAL DEFINITION OF THE VARIANCE LENGTH CURVE. W. Wegener and W. Rosemann. Melliand Textilber. 38: 1340-1345 (Dec. 1957). (597)

By means of integral calculus, the relationship between analytical and statistical definitions of variance length curves is demonstrated. Graphs.

LINEAR PROGRAMMING AND ECONOMIC ANALYSIS. R. Dorfman, P. A. Samuelson, and R. M. Solow. McGraw-Hill Book Co., Inc., 330 West 42 Street, New York 36, N.Y. 1958. 525 p. $10.00. (598)

This book shows the relationship between linear programming and economic analysis, giving consideration to problems of computation, and using illustrative examples of practical applications.

PROJECTION MICROSCOPES IN TEXTILE TESTING. G. Rordorf. Textil-Praxis (English ed.) No. 4: 164-167 (Nov. 1957). (599)

The projection microscope allows the projection of the material to be tested to a size equivalent to projection on a screen. Important fields of application in the textile industry are cited (e.g. fiber analysis, yarn testing, cloth analysis, weaving fault detection, etc.). The design, construction, and operation of a projection microscope are described using the Megascope (manufactured by Hans Klöti, Zürich) as an example. Photograph. Photomicrographs.

RAPID APPROXIMATION FOR STANDARD DEVIATION AND COEFFICIENT OF VARIATION. J. H. Burkhalter (Courtaulds, Inc.). (Letter to the editor). Textile Research J. 28: 91-92 (Jan. 1958). (600)

BENDING TESTER FOR FIBERS, YARNS, AND FABRICS. T. Isshi (Shinshu Univ.). J. Textile Machy. Soc. Japan 3: 48-52 (Dec. 1957). (601)

For metallic substances, the bending test is the measurement of the relation between the curvature of a sample being bent and the bending moment acting on the sample. The author has devised a tester capable of making a similar bending test of fibers, yarns, and fabrics. It consists of two mechanisms--one which bends a sample to form a partial cylinder of any radius, and the other which measures the bending moment acting on the sample. Diagrams. Graphs. Photographs.

SOME DYNAMOMETRIC APPLICATIONS OF AN ELECTRONIC INTEGRATOR-DIFFERENTIATOR. J. Grignet and F. Monfort (Peltzer & Fils). Textile Research J. 28: 47-59 (Jan. 1958). (602)

An electronic integrator-differentiator has been devised which can be connected to two recorders which will then record in one operation the classical load-extension curve, the work of stretching, and the slope of the load-extension curve. The recorders give a continuous trace from which at any moment can be read off as ordinates the corresponding work of stretching and the rate of loading or rate of extension. The technique can be applied equally well to measurements made by dynamometers on fibers, yarns, rovings, or slivers. This circuit has been used for (1) a critical study of the extent to which the constancy of rate of loading or extension is realized in two yarn dynamometers which have been put on the market recently, and (2) for the continuous measurement of the work of stretching and the rate of loading of wool, nylon, Terylene, and other fibers tested on a dynamometer supposed to give a constant rate of extension. Diagrams. Graphs. 4 references.

FIBERS E 1

SOME HISTORICAL EVIDENCE RELATIVE TO THE ASSESSMENT OF WOOL FIBER DIAMETER. F. Bryant (Univ. of Melbourne). (Letter to the editor). Textile Research J. 28: 88-89 (Jan. 1958). (603)

Literature references on investigations which have attempted to assess the capabilities of the human eye in the visual perception and discrimination of very small objects are reported in order to suggest a line of inquiry into the wool classing problem. 11 references.

COTTON FIBER MATURITY RAPIDLY PREDICTED WITH VARIABLE VOLUME OF SAMPLE IN MICRONAIRE. W. E. Chapman. Jr. (U.S. Dept. of Agriculture), and G. Staten (New Mexico Experiment Station). (Letter to the editor). Textile Research J. 27: 991-992 (Dec. 1957). (604)

By increasing the volume of the fiber sample in the micronaire, it is possible to predict fiber maturity, as well as obtain a fineness value, from the same fiber specimen. Photograph. Graph.

COTTON FIBER MATURITY TEST: ESTIMATION BY CLASSIFICATION OF FIBERS SWOLLEN IN CAUSTIC SODA SOLUTION. Textile Inst. J. Textile Inst. 48: P777-P781 (Dec. 1957). (605)

Tentative textile standard no. 47. Photomicrographs. 5 references.

INTERPRETATION OF SPINNING TEST REPORTS. E. Lord and C. Underwood (Shirley Inst.). Empire Cotton Growing Rev. 35: 26-46 (Jan. 1958). (606)

Fiber and spinning tests used at the Shirley Inst. to evaluate the quality of new strains of cotton are discussed. The Shirley miniature spinning plant is described and illustrated.

AN IMPROVED VIBRASCOPE. K. J. Butler (Brit. Rayon Research Assoc.). Skinner's Silk & Rayon Record 32: 51-54 (Jan. 1958). (607)

Detailed description of the electrical circuits, features, and operation of the BRRA vibrascope for determining fiber denier. Diagrams. Table. Photographs. 3 references.

COMPRESSIONAL AND ABSORPTIVE BEHAVIOR OF BULK FIBER SYSTEMS. I. M. Gottlieb, H. Wakeham, and H. M. Virgin (Textile Research Inst.). Textile Research J. 28: 41-46 (Jan. 1958). (608)

Methods are presented for the determination of (1) the interfiber volume of fibers in bulk form when immersed under pressure in water, and (2) the volume of water which can be absorbed by systems of initially dry fibers at various pressures. Data are given for acetate, Acrilan, cotton, Dacron, glass, Fortisan, nylon, Orlon, ramie, silk, Vicara, vicuna, and viscose rayon. Graphs. Photographs. 2 references.

DRAFTING FORCE AND ITS RELATION TO THE MEASUREMENT OF FIBER-FIBER FRICTION. D. S. Taylor (Wool Textile Research Labs., CSIRO, Australia). J. Textile Inst. 48: T466-T470 (Nov. 1957). (609)

It is shown that, contrary to common belief, drafting force measurements do not provide a satisfactory method for assessing the magnitude of fiber friction. However, such measurements may be used to determine uniquely the velocity-friction characteristics. These are possibly more important in processing than absolute magnitudes. Graphs. Table. 12 references.

IDENTIFICATION OF BAST FIBERS (FLAX, HEMP, RAMIE, JUTE). K. Menzi and N. Bigler. Ciba Rev. 11: 33-36 (Nov. 1957). (610)

METHOD FOR THE QUANTITATIVE CHEMICAL ANALYSIS OF BINARY MIXTURES OF POLYAMIDE FIBERS AND CERTAIN OTHER FIBERS. J. Textile Inst. 48: P782-P783 (Dec. 1957). (611)

Tentative textile standard no. 48, 1957.

METHOD FOR THE QUANTITATIVE CHEMICAL ANALYSIS OF MIXTURES OF VISCOSE RAYON AND COTTON. J. Textile Inst. 48: P784-P786 (Dec. 1957). (612)

Tentative textile standard no. 49, 1957.

ACTIVATION ANALYSIS OF FIBROUS MATERIALS. O. Teszler and H. A. Rutherford (N.C. State Coll.). (Letter to the editor). Textile Research J. 28: 86 (Jan. 1958). (613)

Many fibers become radioactive when subjected to a high flux of neutrons. Radioactivities induced in the samples may be identified by appropriate nuclear techniques; a method is therefore provided for determining in trace quantities chemical elements (generally impurities) present in the sample. Table.

MODIFIED VIBRASCOPE TECHNIQUE. G. F. Bush (G. F. Bush Associates). (Letter to the editor). Textile Research J. 28: 89-90 (Jan. 1958). (614)

A modification of the vibrascope technique has been developed. This method of fiber linear density determination obviates the necessity of employing a delicate microbalance or variable precision oscillator. Graphs. 3 references.

METHOD FOR ESTIMATING NUMBER OF FIBERS IN SMALL FLEECE SAMPLES. H. M. Appleyard and M. E. A. Perkin (Wool Inds. Research Assoc.). J. Textile Inst. 48: T415-T420 (Oct. 1957). (615)

A modified technique for estimating the number of fibers in small fleece samples from skin areas of 1 sq cm has been developed and tested using wool from three breeds of sheep (Romney Marsh, Scottish Blackface, and Fine Merino). Photographs. Diagram. Table. 9 references.

METHOD FOR EVALUATING THE TWIST IN NYLON MONOFILAMENTS. F. P. Chappel and R. C. Faust (Brit. Nylon Spinners Ltd). (Letter to the editor). J. Textile Inst. 48: T421 (Oct. 1957). (616)

YARNS E 2

IP-4 CHART COMPUTER. C. M. Rice and J. P. Parker (Am. Enka Corp.). (Letter to the editor). Textile Research J. 28: 87-88 (Jan. 1958). (617)

An instrument for reading and computing values from the Scott IP-4 tester chart used in determining yarn strength is described. Diagram.

DETERMINATION OF VISCOSE RAYON AND COTTON IN BLEND YARNS AND FABRICS USING SODIUM ZINCATE SOLUTION. W. Armfield (Courtaulds Ltd). (Letter to the editor). J. Textile Inst. 48: T503-T505 (Dec. 1957). (618)

A MEASURE OF FIBER DISTRIBUTION IN BLENDED YARNS AND ITS APPLICATION TO THE DETERMINATION OF THE DEGREE OF MIXING ACHIEVED IN DIFFERENT PROCESSES. A. E. DeBarr and P. G. Walker (Shirley Inst.). J. Textile Inst. 48: T405-T414 (Oct. 1957). (619)

A quantitative measure of the extent to which the fiber distribution in a blended yarn approaches that for completely random mixing can be obtained by counting the groups of fibers of the same kind in cross-sections of the yarn. The degree of mixing is found to depend upon the ratio of the number of fibers in the cross-section of the yarn to the total number of doublings and is independent of the proportions of the blend. The relation found between degree of mixing and number of doublings is applied to the determination of the mixing, in terms of the equivalent number of doublings, achieved by a card and by a picker. Graphs. 7 references.

YARN TENSION AND ITS PROBLEMS. PART 3. J. R. Wright (Uster Corp.). Textile Bull. 84: 54-56 (Jan. 1958). (620)

The procedure for measuring yarn tension on spoolers and winders with the Uster recordograph is described. Factors influencing tension variation and winder troubles and remedies are considered. Graphs. Table. See abstr. 161 and 35 (1958) for parts 1 and 2.

NOVEL MERCERIZING TECHNIQUE TO ESTABLISH "TRUE" LENGTH OF COTTON YARN. C. F. Goldthwait and A. L. Murphy (Southern Regional Research Lab.). Textile Research J. 28: 15-21 (Jan. 1958). (621)

A procedure is suggested for the determination of the normal or true lengths of skeins of yarn, i.e. lengths at which the yarn can be regarded as straightened but not stretched, and for the derivation of a suitable measuring-tension for establishing this length. This procedure requires the determination of the tensions developed in skeins of the yarn during a series of mercerizings at lengths in the range of about 97%-102% of an initial or base length previously determined. When the tensions thus developed are suitably plotted, a change in slope in a curve of maximum tensions attained indicates the percentage which corresponds with the desired length of skein. It is suggested also that a measuring tension for single threads proportional to that determined as described for skeins may be suitable for determining the initial lengths of yarn specimens for some of the common physical tests, such as those for elongation and twist. Table. Graphs. 14 references.

SOURCES OF ERRORS IN THE MEASUREMENT OF YARN TENSILE FORCES WITH A COMBINATION OF MECHANICAL AND ELECTRONIC COMPONENTS. L. Waesterberg (Swedish Inst. for Textile Research). Textile Research J. 27: 925-935 (Dec. 1957). (622)

The measurement of yarn tensile forces is made either to control or to adjust the forces or to investigate the effect on these forces from the different process stages. The use of pulleys in the measuring unit can produce disturbances because the yarn and the pulleys form vibrating systems with rather low natural frequencies and slight damping, so that vibrations are easily developed. Furthermore, shortcomings of the mechanical and electrical part of the measuring equipment can cause errors during measurement. The different kinds of errors are summarized. Diagrams. Graphs. 1 reference.

MEASUREMENT OF YARN HAIRINESS. A. Barella. Industrie Textile: 267-272 (Apr. 1957). In French. Through BCIRA 37: 460 (1957). (623)

The effect of singeing on Karnak and American cottons is discussed. Certain relationships existing between the hairiness parameters (number of detached fibers, photometric diameter, hairiness coefficient, hairiness rating, hairiness at both ends) are listed in an appendix.

BAD WORK DETECTIVE. Textile Inds. 122: 76-78 (Jan. 1958). (624)

Using the Spectrograph with the Uster evenness tester to pinpoint mechanical defects. Graphs.

PNEUMATIC EVENNESS TESTER FOR TEXTILE STRANDS. S. Meyer. Faserforsch. u. Textiltech. 8: 417-427 (Oct. 1957). In German. (625)

After a review of the present technology of evenness testing, a special apparatus is described which permits testing on the pneumatic principle. Results of tests on the instrument are compared with results obtained on the Uster tester. Graphs. Diagrams. Photographs. 7 references.

IMPROVEMENTS IN INTEGRATORS FOR ELECTRONIC REGULARITY TESTERS. J. L. Spencer-Smith (Linen Ind. Research Assoc.). J. Textile Inst. 48: T474-T483 (Dec. 1957). (626)

The performance of electronic yarn regularity testers is compared and it is shown that, while the autographic records given by several instruments on the same lengths of yarn agree closely, the integrator readings of the coefficient of variation may vary considerably, and different testers do not always place a series of yarns in the same order of regularity. These variations in the performance of integrators are explained by the fact that the conventional type of integrator measures a biased average of the deviations from the mean and the bias may vary from one instrument to another. The effect of this bias on the measurement of irregularity is discussed, and patented circuits are described, first, for eliminating the bias, so that the integrator measures the true value of the mean or the standard deviation, and, secondly, for introducing an extreme bias, so that the integrator measures a mean range of the variations or the differences between the mean and the mean values of either the thickest or the thinnest places in the yarn. Tables. Diagrams. 6 references.

FABRICS E 3

FLAMMABILITY OF THIN FLEXIBLE MATERIALS. C. T. Webster. J. Textile Inst. 48: T471-T473 (Dec. 1957). (627)

Some further work on the flammability of fabrics is described, and an empirical equation is derived for the vertical flame speed in terms of the distance and time of spread of flame on the flammability apparatus described in British Standard 476: Part 2: 1955. This relationship, which is the basis of the figure of merit in the British Standard, is considered to be more reliable than the equation relating distance of spread and flame speed given by Lawson, Webster, and Gregsten in J. Textile Inst. 46: T453 (1955). Graph. Table. 2 references.

DETERMINING THE WIDTH OF FABRICS. Can. Textile J. 74: 79 (Nov. 15, 1957). (628)

Points needing clarification through the medium of a formal test method are enumerated.

METHODS OF TESTING TEXTILES. METHOD 46: GREY SCALE FOR EVALUATING CHANGE IN COLOR. METHOD 47: GREY SCALE FOR EVALUATING STAINING. Can. Textile J. 75: 56-58 (Jan. 24, 1958). (629)

Method 46 refers to colorfastness of dyed textiles and method 47 to colorfastness of undyed textiles.

FADING LAMPS FOR LIGHTFASTNESS TESTS. P. R. Dawson. Textile Merc. 137: 1073 (Dec. 27, 1957). (630)

The three variables thought to be responsible for the anomalous behavior of fading lamp test results are: differences in spectral composition of enclosed carbon arc light when compared to daylight; differences in temperatures of patterns and standards during exposure; and differences in the moisture content of patterns and standards during exposure. An investigation of these factors is briefly reported.

METHODS OF TESTING TEXTILES: WOVEN AND KNITTED FABRIC COUNT. Can. Textile J. 74: 56-57 (Dec. 27, 1957). (631)

Methods for the determination of the number of yarns per inch in a woven fabric, in the warp and weft directions, and the determination of the number of wales and courses per inch in knitted fabrics are described.

OTHER E 4

EXPERIMENTAL METHOD FOR THE DETERMINATION OF THE "CLO" VALUE OF CLOTHING ASSEMBLIES. J. R. Brown and L. M. Croton. J. Textile Inst. 48: T379-T388 (Oct. 1957). (632)

The "clo" unit may be defined as the amount of insulation necessary to maintain comfort and a mean skin temperature of 92° F in a room at 70° F with air movement not over 10 ft/min, humidity not over 50% with a metabolism of 50 kcal per sq/m/hr. On the assumption that 76% of the heat is lost through the clothing, a "clo" may be defined in physical terms as the amount of insulation that will allow the passage of 1 kcal per sq/m/hr with a temperature gradient of 0.18° C between the two surfaces. The paper describes a routine experimental method for the determination of the "clo" value of clothing assemblies under certain set environmental conditions. Tables. Graphs. Diagrams. 17 references.

QUANTITATIVE DETERMINATION OF CYCLOHEXYLAMINE IN RAYON SPIN BATHS. M. Matell (Mo & Domsjö AB). (Letter to the editor). Textile Research J. 27: 993 (Dec. 1957). (633)

IDENTIFICATION OF DYESTUFFS ON TEXTILES. AATCC Metropolitan Sect. Textile Inds. 122: 101-103 (Jan. 1958). (634)

Chart covering methods for identifying dyestuff type on cotton, rayon, wool, silk, acetate, Arnel, acrylic fibers, and nylon.

COLORIMETRY FOR COLOR CONTROL. PART 2. STANDARDS, DIFFERENCES, TOLERANCES. R. E. Derby, Jr. Man-Made Textiles 34: 83-84 (Jan. 1958). (635)

The problem of an adequate color difference formula for determining the acceptability of a color matching sample is discussed, and the use of a graphical procedure based on D. L. MacAdam's data is briefly described. See abstr. 182 (1958) for part 1.

IDENTIFICATION OF DYESTUFF CLASSES ON DYED NATURAL AND SYNTHETIC FIBERS. AATCC: N.Y. Sect. Am. Dyestuff Reptr. 47: P9-P16 (Jan. 13, 1958). (636)

This paper systematizes and presents the procedures for the identification of classes of dyes on natural and on synthetic fibers in such a way that a technician who is not experienced in the textile business can readily arrive at a correct conclusion. The paper consists of six parts and an introduction. Part 1 deals with the identification of 13 classes of dyes used on cotton and rayon. Part 2 takes up the identification of 9 classes of dyes used in wool and silk dyeing. Part 3 gives a method for the identification of 5 classes used on acetate and on Arnel. Part 4 deals with identification of 9 classes of dyes used on two types of nylon. Part 5 gives the method for the identification of 5 classes of dyes used on acrylic fibers, Orlon, Acrilan, and Dynel. Part 6 describes the means for identification of dyes on Dacron.

ANALYSIS OF ALKYLBENZENE SULFONATES. E. W. Blank (Colgate-Palmolive Co.). Soap Chem. Specialties 34: 41-44, 107 (Jan. 1958). (637)

COLORIMETRIC DETERMINATION OF WOOL WAX IN WOOL FIBERS, WASHINGS, AND TECHNICAL PRODUCTS. K. Heidler (Inst. Wool Research, Brno, Czech.). Chem. Tech. (Berlin) 8: 160-163 (1956). In German. Summary in Chem. Abstr. 52: 735i (1958). (638)

INDUSTRIAL ENGINEERING F

AUTOMATION ECONOMICS REQUIRES ENGINEERED ACCOUNTING. C. N. Neklutin. Automation 4: 38-42 (Nov. 1957). (639)

A method is set forth for determining the conditions under which production will have minimum cost per unit.

TESTED SCIENTIFIC INVENTORY CONTROL. W. E. Welch. Management Pub. Corp., 22 West Putnam Ave., Greenwich, Conn. 1956. 158 p. $12.50. (640)

Provides methods for determining safety margins by types of stock, quantity decisions, inventory studies, and use of tables and nomographs in inventory operations.

AUTOMATION. Textile World 108: 67-71, 162 (Jan. 1958). (641)

Automation: what it is and what it means to you, by R. B. Pressley, p. 67-68; Automation economics: how it affects labor, p. 69; Automation in textiles: what is happening, p. 70-71, 162; Textile automation: future, p. 71.

DECISION MAKING: AN EXPERIMENTAL APPROACH. D. Davidson and P. Suppes. Stanford Univ. Press, Stanford, Calif. 1957. 121 p. $3.25. (642)

Experimental tests of operations research models are discussed, with particular emphasis on normative theory, linear programming, and utility evaluation. 26 references.

ENGINEERED WORK MEASUREMENT. D. W. Karger and F. H. Bayha. Industrial Press, 93 Worth Street, New York 13, N.Y. 1957. 635 p. $12.00. (643)

Principles and application of methods-time measurement, time and motion study, and statistical analysis of operator and process cycles. Both elementary and advanced aspects of methods-time measurement and time and motion study are discussed. Illustrative work forms are presented. Includes an extensive bibliography.

FULLY AUTOMATIC INVOICING WITH PUNCHED CARD MACHINES. W. T. Schumann. Melliand Textilber. (English ed.) 38, No. 4: 304-306 (1957). (644)

The use of the Bull punched card machine in ensuring the dispatch of an invoice with a shipment of material, as well as for compiling statistics (deliveries, sales, accounting), is explained.

WORK SAMPLING. R. E. Heiland and W. J. Richardson. McGraw-Hill Book Co., 330 West 42 Street, New York 36, N. Y. 243 p. $6.00. (645)

A simplified presentation of the use of statistical methods in work sampling, including the use of binomial theorems for establishing control standards. One chapter is devoted to a case history on a study of loom utilization.

MACHINERY AND MAINTENANCE F 1

CONSTRUCTION, OPERATION, AND MAINTENANCE OF STANDARD-KESSEL INTERNAL FLUE BOILERS FOR THE TEXTILE INDUSTRY. H. Kittel. Melliand Textilber. (English ed.) 38, No. 4: 290-294 (1957). (646)

HEAT LOSSES IN THE TEXTILE INDUSTRY. H. Baumann. Melliand Textilber. (English ed.) 38, No. 4: 288, 290 (1957). (647)

Sources of heat losses in textile processing are discussed and savings are suggested.

USES OF SYNTHETIC RUBBER IN SPINNING AND WEAVING. G. Blake (Armstrong Cork Co. Ltd). Textile Weekly 57(2): 1612-1617 (Dec. 6, 1957); 1711-1712 (Dec. 13, 1957). (648)

The properties and applications of the four basic drafting roll covers (cork-loaded, synthetic rubber cot CL/S, straight synthetic cots S/S.1, 738/1 and 728) produced by Armstrong Cork Ltd are described. A roller grinding machine for synthetic rubber drafting roll covers is described, and the advantages of synthetic rubber drafting aprons and loom accessories (e.g. canvas-backed ribbon for takeup rolls, pickers, and picker buffers) are discussed.

NEWEST TEXTILE MOTORS. C. S. Bouggy (Reliance Elec. & Eng. Co.). Textile World 108: 74-75 (Jan. 1958). (649)

During the past 18 months, most major motor manufacturers have introduced totally enclosed fan-cooled motors designed specifically for textile mills. The new motor has solved most of the basic problems of textile motors: (1) maintenance time is decreased appreciably, (2) the necessity for frequent cleaning is eliminated, (3) longer trouble-free life is afforded, (4) fire hazards are decreased, and (5) water damage is eliminated.

WEIGHING SYSTEM HAS A MEMORY. Automation 4: 62-63 (Nov. 1957). (650)

Control set-up for automatic weighing of powdered products.

QUALITY CONTROL F 3

QUALITY CONTROL. PART 4. L. Bellwood. Wool Rev. 31: 33, 53 (Dec. 1957). (651)

Quality control in woolen yarn spinning.

SAMPLING SIZE. B. Case (Huntsville Mfg. Co.). Textile Bull. 84: 46-48 (Jan. 1958). (652)

This article explains the specific problem of organization of a sizing program designed to be accurate to a given percent. A workable method for solution of most sampling size problems is presented in terms of a program for controlling weights on sliver, roving, yarn, etc.

SCIENCES G

CHEMISTRY G 1

HEAT EVOLUTION DURING THE ACETYLATION OF COTTON. E. H. Greathouse, H. J. Janssen, and C. H. Haydel (Southern Regional Research Lab.). Ind. Eng. Chem. 50: 97-102 (Jan. 1958). (653)

To facilitate control of the process of partial acetylation, reliable information was required on the heat evolved in the reaction of acetic anhydride with cotton cellulose to the extent of one degree of acetyl substitution. To accomplish this it was necessary to eliminate water from the system to avoid heat from the hydrolysis of acetic anhydride. The total amount of heat evolved is uniformly about 106 calories per gram of cotton per degree of substitution, although this is released much more slowly with raw than with purified cotton. A technique has been proposed for following acetylation by heat evolved and stopping the reaction at a selected point. Tables. Graphs. 22 references.

ASTM STANDARDS ON SOAPS AND OTHER DETERGENTS. Am. Soc. for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 1957. 168 p. $2.75. (654)

This compilation brings together ASTM standards and tentatives pertaining to soaps and other detergents. Definitions are also included. Ten standards are new or recently revised.

OXIDIZING PARTIALLY ETHERIFIED COTTONS. R. M. Reinhardt, J. D. Reid, and T. W. Fenner (Southern Regional Research Lab.). Ind. Eng. Chem. 50: 83-86 (Jan. 1958). (655)

Alkali-soluble textile materials were prepared by chromic acid oxidation of partially etherified cottons. The extent of solubility of oxidized-etherified cottons depends upon two principal factors: method of etherification and nature of the ether substituent. Increased solubility of etherified cottons after oxidation permits less drastic oxidative conditions which results in greater retention of useful textile properties. Adding oxalic acid to the chromic acid bath greatly increases oxidation rate without undesirable effects on physical properties of the alkali-soluble textiles produced. Table. Graphs. 19 references.

EFFECT OF SALTS ON CYANOETHYLATION OF COTTON. N. M. Bikales, A. H. Gruber, and L. Rapoport (Am. Cyanamid Co.). Ind. Eng. Chem. 50: 87-90 (Jan. 1958). (656)

Rate and extent of cyanoethylation for cotton was strikingly increased when concentrated solutions of salts which swell cellulose were used with dilute alkali. Yield based on acrylonitrile was improved, and salts such as sodium thiocyanate, iodide, and perchlorate were most effective. The additional swelling action provided by the salts was useful because dilute solutions of alkali are required to minimize cleavage, hydrolysis, and polymerization. Parallelism between properties of concentrated salt solutions and their effectiveness in cyanoethylation suggests that swelling of cellulose may be a function of the degree of local order of the ions in solutions. Properties of yarn cyanoethylated in the presence of salts were equivalent to those of cotton treated in the conventional fashion. Tables. Graphs. 25 references.

DECRYSTALLIZATION OF COTTON CELLULOSE. C. H. Haydel, J. F. Seal, H. J. Janssen, and H. L. E. Vix (Southern Regional Research Lab.). Ind. Eng. Chem. 50: 74-75 (Jan. 1958). (657)

Extractive and evaporative procedures for removing monoethylamine reagent from decrystallized cotton were investigated on a pilot plant scale. Hexane solvent consistently gave products containing both cellulose I and cellulose III crystal lattices in residual crystalline areas and required excessively long periods for extraction. On the other hand, the reagent was more easily evaporated and yielded products of low crystallinity. Either crystal lattice could be formed in this product, depending upon the evaporation rate. Graphs. 11 references.

THERMODYNAMIC RELATIONS AMONG STRESSES, DEFORMATIONS, AND MOISTURE ABSORPTION. J. W. S. Hearle (Univ. of Manchester). Textile Research J. 27: 940-945 (Dec. 1957). (658)

A new form of the derivation of the relation between moisture absorption, swelling, and applied stresses is given and used to obtain the equations applicable to textile systems. They are strictly valid only under reversible conditions. Some applications of these equations are suggested. They may also be of value in dealing with other problems, particularly in relation to the dimensional stability of material under changing moisture conditions, which is sometimes a serious defect in use. Diagrams. 7 references.

CONTINUOUS CYANOETHYLATION OF COTTON YARNS. H. J. Janssen, A. M. DuPré, C. H. Haydel, J. F. Seal, and H. L. E. Vix (Southern Regional Research Lab.). Ind. Eng. Chem. 50: 76-79 (Jan. 1958). (659)

A principal factor adversely affecting commercialization of processes for the cyanoethylation of cotton is excessive acrylonitrile byproduct formation. However, in a continuous process, with minimal reagent loss, reagent is dissolved in an alkaline catalyst solution, absorbed in cotton yarns, and excess solution is padded off by passing the yarns into a heated mercury bath in which the reaction occurs. Low byproduct formation and good utilization of acrylonitrile eliminated apparatus for reagent recovery. The low solubility of acrylonitrile in dilute alkali and the high efficacy of mercury padding necessitated multiple passes of the yarn through the reagent and reaction baths or conditions that permitted some acrylonitrile phase to enter the mercury with the yarn. The products are superior in breaking strength and heat resistance to those cyanoethylated by more conventional procedures. Diagram. Tables. 12 references.

MECHANISM OF THE OXIDATION OF CELLULOSE BY PERIODATE. T. P. Nevell (Shirley Inst.). J. Textile Inst. 48: T484-T494 (Dec. 1957). (660)

The effects of temperature, electrolytes, and pH, on the rate of oxidation of cotton cellulose by periodate were studied. Graphs. Tables. 18 references.

REPLACING HYDROXYL GROUPS IN COTTON CELLULOSE. E. Klein and J. E. Snowden (Southern Regional Research Lab.). Ind. Eng. Chem. 50: 80-82 (Jan. 1958). (661)

The reaction between cotton cellulose and sulfonyl chlorides to form cellulose sulfonates has been studied to determine the most effective pretreatment methods. The resulting esters are useful intermediates for making new cellulose derivatives in which the cellulosic hydroxyl group has been replaced. Reagents used in the exchange reactions and followed by infrared spectra are phthalimide, toluenesulfonamide, saccharine, phenols and thiophenols, substituted phosphoric acids, halogens, potassium thiocyanate, amines, and nitropropane. Removal of sulfonate groups attached to secondary carbons is discussed, and the effect of acetyl groups on a neighboring carbon is demonstrated. Graphs. Table. 7 references.

APPLICATION OF STATISTICAL THEORY OF ELASTOMERS TO SUPERCONTRACTED KERATIN FIBERS. A. R. Haly and M. Feughelman (Wool Textile Res. Labs. CSIRO, Australia). Textile Research J. 27: 919-924 (Dec. 1957). (662)

Results of a study of the supercontraction of keratin fibers in lithium bromide solutions and of some mechanical properties of supercontracted fibers are presented. The mean number of amino acid residues in the chains between positions of crosslinking was calculated from degree of contraction data, assuming that the chains were randomly kinked. In addition, the number was calculated from stress-strain data, using a formula which has been derived for rubber. The values obtained in these two ways were in satisfactory agreement, indicating that data about supercontracted protein fibers may help to elucidate their molecular structure. Graphs. Table. 15 references.

MODE OF OPERATION OF ANTIREDEPOSITION AGENTS IN DETERGENT SOLUTIONS. H. S. Stillo and R. S. Kolat (Dow Chem. Co.). Textile Research J. 27: 949-961 (Dec. 1957). (663)

Application of colloid stability theory to soil redeposition in detergent liquors has enabled the formulation of a working hypothesis for the effect of polymeric additives on the process. Ionogenic additives are presumed to function by increasing the electrical repulsive forces between soil and fabric, while nonionogenic or weakly ionogenic additives may decrease the attractive dispersion forces or increase the nonelectrical repulsive forces. The electrical repulsive force is inferred from soil redeposition tests to be at a maximum when the zeta potentials of soil and fabric are equal in sign and magnitude. As the difference in zeta potential between the two substrates is increased, an attractive force results, even though the sign of the zeta potential is the same for both substrates. This behavior is attributed to an induced charge effect. Tables. 23 references.

CHAIN LENGTH BREAKDOWN OF CELLULOSE BY ACETIC ACID SOLUTIONS OF WATER AND SULFURIC ACID. C. J. Malm, K. T. Barkey, E. B. Lefferts, and R. T. Gielow (Eastman Kodak Co.). Ind. Eng. Chem. 50: 103-106 (Jan. 1958). (664)

In making cellulose acetate, cellulose containing moisture is usually activated with acetic acid and treated with sulfuric acid in acetic acid solution to lower its chain length. Hydrate formation and low ionization of the sulfuric acid were confirmed by freezing point and conductivity values. Increased water decreases the rate of cellulose breakdown when uniformly reactive cellulose is used. When cellulose is incompletely activated, increasing water markedly increases the uniformity of sulfuric acid sorption and the average rate of cellulose breakdown. At higher water contents, the diffusion factor is less important. This results in the average breakdown reaching a maximum and then decreasing as hydrate formation and lower superacidity of the sulfuric acid become increasingly important. This information contributes to understanding factors in activation and treatment of cellulose for acetylation. Graphs. Tables. 11 references.

SURFACTANTS LISTED: SYNTHETIC DETERGENTS AND EMULSIFIERS UP TO DATE. 4th revision. PART 2. J. W. McCutcheon. Soap Chem. Specialties 34: 44-62 (Jan. 1958). (665)

MISCELLANY H

CAN WOOL MEET THE CHALLENGE? Hosiery Times 31: 43-46 (Jan. 1958). (666)

Some of the problems confronting research men in their bid to put wool beyond the reach of its competitors in its traditional domain are considered. The difficulties involved in conferring so-called easy care properties on wool without impairing its natural attributes are emphasized.

TEXTILES: I/EC ANNUAL REVIEW 1957. J. F. Krasny and M. Harris (Harris Research Labs.). Ind. Eng. Chem. 50: 38A-40A (Jan. 1958). (667)

New developments during 1957 in fibers, dyes, and finishes.

BASE BOOK OF TEXTILE STATISTICS. Textile Organon 29: 1-44 (Jan. 1958). (668)

This issue consists almost entirely of tabular statistical material on the U.S. and world manmade fiber producing industry through 1955. It brings up to date the January 1952 Base Book, although some series have been dropped. The new tables added cover producing capacity, rayon-acetate staple-tow distribution by trade and territory, and a tariff rate history of the manmade fibers, all with regard to the U.S. industry. For both the U.S. and the world industry, data on the noncellulosic fibers have been added for the period 1946 to 1955, together with separate figures for yarn-monofilaments and staple-tow. Other textile product series such as U.S. cotton, wool, and silk consumption and prices are also presented, both separately and in their relationship to the manmade fibers. Data on military and per capita fiber consumption are also given. Copies are available from the Textile Economics Bur., Inc., 10 East 40 St., New York 16, N.Y., at $1.50 each postpaid.

THE WORLD IS CATCHING UP. H. Riemer. Fairchild Publications, Inc., 7 East 12 Street, New York 3, N.Y. 1957. 2 v. (638 p.). $10.00. (669)

Observations and impressions of Harry Riemer, editor of Daily News Record, on a round-the-world tour during which he traveled 60,000 miles, and visited 36 countries.

BRITISH TEXTILE MACHINERY DEVELOPMENTS IN 1957. Textile Weekly 57(2): 1795-1802 (Dec. 20. 1957). (670)

TEXTILE INTERFIBER COMPETITION 1949-1955. Textile Organon 28: 157-172 (suppl., Oct. 1957). (671)

This special supplement to the October 1957 Organon issue presents data on 102 end uses of cotton, wool, the manmade fibers, silk, linen, and the hard and soft vegetable fibers by years from 1949 through 1955. These data were prepared by the Textile Fibers Dept. of E. I. du Pónt de Nemours & Co.

MANMADE FIBER TEXTILES: A BIG AND GROWING MARKET FOR CHEMICALS. S. B. McFarlane and A. F. Caprio. Modern Textiles Mag. 39: 31-32, 37, 40, 46 (Jan. 1958). (672)

The growth of the textile industry from 1950 up to the present and its effect on the chemical industry are analyzed. Tables. 12 references.

TEXTILE INTERFIBER COMPETITION. Inst. for Economic Research, Toyo Spinning Co. Ltd, Osaka, Japan. 1957. 23 p. Toyobo economic series, no. 3. (673)

A theoretical study based on data prepared by E. I. du Pont de Nemours & Co.

FIFTY YEARS OF CHEMICAL PROGRESS IN TEXTILES. E. M. Buras, Jr. and M. Harris (Harris Research Labs.). Ind. Eng. Chem. 50: 97A-101A (Jan. 1958). (674)

PATENT CHECKLIST

U.S. patents may be obtained from the U.S. Patent Office, Washington, 25, D.C., for 25¢ a copy. Photostatic copies of foreign patents are also available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

APPARATUS FOR CHAIN MOISTENING COTTON FIBER DURING GINNING. W. R. Bryant. USP 2 815 536 and 2 815 537, Dec. 10, 1957. (675)

Method and apparatus for adding predetermined, accurately controlled moisture to cotton fibers at various stages and stations in their passage through a gin plant.

MECHANICAL DECORTICATION MACHINE. A. Angiolini and R. Barbuti (Italy). USP 2 817 119, Dec. 24, 1957. (676)

In the apparatus described the plant stems are submitted to mechanical vibrations of continuously increasing frequencies, in order to obtain progressive crushing of the tissues without exposing the fibers to sudden stresses and a resultant decrease in strength.

APPARATUS FOR SEPARATING AND CLEANING ASBESTOS FIBER. C. V. Smith. USP 2 819 846, Jan. 14, 1958. (677)

MANMADE FIBERS A 2

CONTINUOUS APPARATUS FOR PACKING TERYLENE FIBERS INTO BALES. B. W. Hirsh and I. W. F. Smith (to Imperial Chemical Industries Ltd). BP 777 113, June 19, 1957. Through BCIRA 37: 443 (1957). (678)

YARN PRODUCTION B

TOP ROLL CARRIER ADJUSTMENT. E. Dausch (to SKF Kugellagerfabriken GmbH). USP 2 819 497, Jan. 14, 1958. (679)

Automatic means for mounting and guiding top roll carriers for shifting movement along the arm.

LOW HORSEPOWER BROKEN END SUCTION DEVICE. W. W. Avera (to Bahnson Co.). USP 2 819 579, Jan. 14, 1958. (680)

OPENING, PICKING, FIBER PREPARATION B 1

STRIPPER FOR OPENING MACHINERY DOFFER CYLINDER. J. E. Brown and W. A. Harmon (to Cen-Tennial Cotton Gin Co.). USP 2 816 324, Dec. 17, 1957. (681)

APPARATUS FOR HOMOGENEOUS FIBER BLENDING. W. A. Hunter and F. Singleton (to T.M.M. (Research) Ltd). USP 2 816 327, Dec. 17, 1957. (682)

Fiber ingredients are delivered in sheet formation to a conveyor where finely divided tufts are pulled from the fringe of successive sheets and fed to a further opening stage in the form of superposed tenuous layers.

CARDING AND COMBING B 2

PREFORMED END WIRE FOR CARDING ROLLS. J. D. Hollingsworth. USP 2 816 325, Dec. 17, 1957. (683)

Conversion of rolls (designed for flexible card clothing) to adapt them for use with metallic clothing.

SLIVER COILER USING LARGE CANS. R. D. Carmichael and C. W. Walter (to Southern States Equipment Corp.). USP 2 816 328, Dec. 17, 1957. (684)

The cans are fitted with rollers to facilitate movement of the cans along the floor, and the rotatable platform of the coiler has recessed means for receiving the rollers and keeping the can stationary.

CARDING MACHINE FEED ROLL. E. Scowcroft (England). USP 2 817 120, Dec. 24, 1957. (685)

Resilient rubber, synthetic rubber, or plastic covered feed roll which maintains a grip on the lap and prevents the passage of thick portions to the takerin roll.

DRAWING AND ROVING B 3

SYNTHETIC RUBBER DRAFTING COTS AND APRONS. G. E. Watts (to Resilla Cots & Rollers Ltd). USP 2 816 326, Dec. 17, 1957. (686)

The addition of a water-soluble alginate to synthetic rubber cots and aprons produces a marked resistance to lapping and eyebrow formation.

SPINNING, WINDING, TWISTING B 4

FALSE TWIST SPINDLE. C. B. Kingsbury and D. J. Lamb (to North Am. Rayon Corp.). USP 2 813 393, Nov. 19, 1957. (687)

False twist spindle with a twist tube rotatably supported by ball bearings in a housing which has an opening so that a drive belt can contact the twist tube.

TOP ROLL WEIGHTING FOR SPINNING MACHINE. A. Schüssler and E. Schäfer (to VEB Spinnereimaschinenbau). USP 2 815 538, Dec. 10, 1957. (688)

RING TWISTING MACHINE. F. Ridgway (to Arundel Coulthard & Co. Ltd). USP 2 815 639. Dec. 10, 1957. (689)

Each ring is lubricated by a wick extending from an oil trough to a groove in the ring. The up and down movement of the ring rail operates a reciprocating pump to supply oil to the trough.

YARN GUIDE FOR TRAVERSING ROLLS. C. J. LePome (to E. I. du Pont de Nemours & Co.). USP 2 815 904, Dec. 10, 1957. (690)

Yarn guide located at the reversal point at the inner edge of a traversing roll for holding the yarn out of contact of the roll forming the groove bottom.

BOBBIN CHANGING APPARATUS. R. H. Teupel (to Spinnbau GmbH). USP 2 819 580, Jan. 14, 1958. (691)

Bobbin rail change mechanism for roving frames and spinning machinery, particularly for hard fibers such as bast, hemp, flax, jute, etc.

TWISTER HEAD FOR WOOL SPINNING FRAME. R. B. Newton (to Whitin Mach. Works). USP 2 819 581, Jan. 14, 1958. (692)

Duplicate and interchangeable fixed and movable gripping members positioned within the surface of revolution.

RING TWISTING FRAME FILAMENT YARN FEED. E. G. Hill (to Textile Appliance Corp.). USP 2 819 582, Jan. 14, 1958. (693)

OSCILLATING SLEEVE FOR SPINNING SPINDLES. H. Gassner (to Kugelfischer Georg Schafer & Co.). USP 2 819 583, Jan. 14, 1958. (694)

Seamless tubular sleeve which receives in its interior both the upper spindle bearing and the lower or pivot bearing. Dampening is effected by means of a spring-biased ball, as well as by a large diameter portion at the lower end of the sleeve.

CREEL FOR TWISTING AND SPINNING MACHINES. W. W. Hewitt (to Spin-SaVac Corp.). USP 2 819 855, Jan. 14, 1958. (695)

Method of attaching the spindle supporting rails of a creel to the lateral arms of a twisting or spinning machine.

YARNS B 5

CORDS FOR STRINGING RACKETS. G. Vaughan (to Dunlop Rubber Co. Ltd). BP 775 093, May 22, 1957. Through BCIRA 37: 383 (1957). (696)

The cords have a nylon or Terylene monofilament core and at least one helical wrapping bonded to it.

ELASTIC FABRICS AND YARNS. C. S. Parker and A. Melville (to Bleachers' Assoc. Ltd and Bradford Dyers Assoc. Ltd). BP 777 449, June 26, 1957. Through BCIRA 37: 456 (1957). (697)

Thermoplastic fibers (Terylene, nylon, etc.) are compressively shrunk and then heat set. They are then elastic and may be used for bandages, body-conforming garments, and electrical insulation.

HEAT-RESISTANT CELLULAR SYNTHETIC FIBER YARN. R. N. Robinson (to Robinson Thread Co.). USP 2 815 559, Dec. 10, 1957. (698)

Heat-resistant synthetic fiber yarn is prepared by incorporating air cells within individual, crinkled, intermeshed fibers of a multiple filament synthetic thread by means of a suitable adhesive.

PREPARATION OF CORED COMPOSITE YARN. P. M. Strang. USP 2 817 947, Dec. 31, 1957. (699)

Fibers of different characteristics are first suspended in separate fluid mediums (which later mingle) and spun while so suspended to form a yarn with a core consisting primarily of one type of fiber and a wrapping of the second type. The rotation of the liquid intertwists the core-forming fibers and twines the cover-forming fibers about the twisted core fibers.

REGENERATED CELLULOSE CORDAGE. R. R. Smith (to Am. Viscose Corp.). USP 2 819 988, Jan. 14, 1958. (700)

Rayon baling twine composed of filaments with a coating which is 50-75% by weight of an asphalt or coal tar pitch, from 20-40% of rosin, and from 6-20% of a hard wax.

FABRIC PRODUCTION C

WARPING, SLASHING, YARN PREPARATION C 1

RAYON SHIPPING CARTON. J. E. Talbot (to Am. Viscose Corp.). USP 2 818 974, Jan. 7, 1958. (701)

Corrugated cardboard shipping container in which yarn packages are interlockingly stacked to provide rigid support and positioning.

WARP SIZING AGENT. T.-J. Suen and W. N. Russell (to Am. Cyanamid Co.). USP 2 819 189, Jan. 7, 1958. (702)

Process of sizing yarns with a water soluble vinyl copolymer containing recurring nitrile and carboxylate groups.

PERIODICALLY ACTING YARN BRAKE. E. Pfarrwaller (to Sulzer Frères SA). USP 2 819 736, Jan. 14, 1958. (703)

Yieldable brake element, stretched by tension forces, which works in conjunction with a rigid element to exert a braking effect on a yarn moving between them.

YARN PACKAGE CARRIER. K. C. Jackson and T. B. Frearson (to Brit. Celanese Ltd). USP 2 819 908, Jan. 14, 1958. (704)

WEAVING C 2

HEDDLE FRAME DRIVE. W. G. Bejeuhr (to Mohasco Industries, Inc.). USP 2 815 772, Dec. 10, 1957. (705)

Single drive for a series of heddle frames with a control mechanism which causes those frames moving down to counterbalance a corresponding number of frames moving up, thus reducing the force required to operate the frames through successive cycles.

THIN PLACE DETECTOR FOR LOOMS. R. M. Ingham, Jr. (to Deering Milliken Research Corp.). USP 2 815 773, Dec. 10, 1957. (706)

Electric stop motion which may be mounted on a loom temple, thus preventing false actuation of the stop motion as is possible with an apparatus which has a long feeler contacting the fabric in the center of the loom.

WEFT INSERTION MECHANISM. D. W. Shimwell (to Weaving Research & Textile Commission Agents Ltd). USP 2 816 576, Dec. 17, 1957. (707)

Improved shedding and beatup with concomitant increased loom production are accomplished by the use of two reciprocating spears (entering from opposite sides) each carrying a weft yarn and following each other closely across the warp shed. The warp yarns are shedded progressively in the space between the two spears as they simultaneously pass across the fabric. Each spear, as it extends across the cloth, is pressed into the fell so that the spear itself effects beatup.

SELVAGE FORMATION. D. W. Shimwell (to Weaving Research & Textile Commission Agents Ltd). USP 2 816 577, Dec. 17, 1957. (708)

Selvages with looped and cut ends are produced by means of selvage loop forming pins which incorporate a cutter to sever the loop formed around the pin at the selvage as the cloth is woven.

HANDLOOM FOR TIES, BELTS, ETC. T. Sakano (Japan). USP 2 817 366, Dec. 24, 1957. (709)

The operating plates of the loom are supported and oscillated by rods passing through them and have other holes for warp passage.

WEFT TRANSFER MECHANISM. E. Pfarrwaller (to Sulzer Frères SA). USP 2 817 367, Dec. 24, 1957. (710)

Mechanism for looms drawing weft yarn from packages separate from the weft insertion means. Weft thread insertion is by means of gripper shuttles or needles.

PICKER STICK CHECK. O. L. Carter. USP 2 817 368, Dec. 24, 1957. (711)

Check strap friction unit which causes the blow of the picker stick to be gradually absorbed without damage to the strap.

CONVERTIBLE LOOM LAY. C. P. Bergstrom (to Crompton & Knowles Loom Works). USP 2 817 369, Dec. 24, 1957. (712)

Lay which can be converted from one setting to another for operation with different numbers of shuttles. If four shuttles are required, a unit having a relatively large layend will be fitted to the lay, but if only two shuttles are needed the heavy unit will be replaced by a lighter unit.

SHUTTLE CHANGING MECHANISM. E. A. Butin (France). USP 2 817 370, Dec. 24, 1957. (713)

Shuttle changing performed through the axial shifting of a camshaft.

LOOM HEAD MOTION. A. H. Landry. USP 2 818 085, Dec. 31, 1957. (714)

Head motion which makes possible a reduction in the size and weight of the various components of the drive connections for the harness.

LOOM TEMPLE. E. C. Nichols (to Draper Corp.). USP 2 818 087, Dec. 31, 1957. (715)

Gripping jaw type temple which grips the cloth close to the fell (permitting closer approach by the reed at beatup) without damage to the fabric. In addition, a lower warp line is maintained, eliminating interference with the filling carrier or shuttle.

WIRE CLOTH SELVAGES. D. E. Houghton (to N.Y. Wire Cloth Co.). USP 2 818 088, Dec. 31, 1957. (716)

Method of forming selvages from the cut weft wires extending beyond the warp wires during the weaving of screening fabric.

SHUTTLELESS LOOM. K. Haberhauer (to Durkoppwerke AG). USP 2 818 882, Jan. 7, 1958. (717)

Weft-insertion-needle apparatus which employs a double shed to weave two superimposed half-portion fabrics connected along the fold line and with a selvage at the warp end. The fabric when unfolded is twice the width of the loom.

WEFT STOP MOTION FOR PNEUMATIC LOOMS. R. Opletal (to Výzkumný, Czechoslovakia). USP 2 819 737, Jan. 14, 1958. (718)

Weft feeler mounted on a rockable support penetrates with its tip between two warp threads and rests with its free end against the thread last woven prior to the insertion of a new weft thread. During its return movement it swings around its axis relative to the support due to the resistance of the new weft thread. If no weft thread is inserted, or if the thread is broken, no resistance is encountered, and no swinging movement is produced, which causes the driving motor to stop.

PICKER STICK CHECK. G. H. Hufferd. USP 2 818 883, Jan. 7, 1958. (719)

Checking device which develops its action by shearing the boundary layer of a fluid as a function of kinematic viscosity.

TRANSFERRER LATCHES FOR WEFT REPLENISHING MECHANISMS. S. O. Dodge (to H. F. Livermore Corp.). USP 2 818 885, Jan. 7, 1958. (720)

Simple and inexpensive latch mechanism in which the latch finger has no tendency to fall off or loosen so far that it fails to actuate the transferrer correctly.

TRANSFER FORK FOR WEFT REPLENISHING MECHANISMS. J. J. Addis. USP 2 818 886, Jan. 7, 1958. (721)

Cushioned transfer fork for engaging and imparting movement to the free end of the stem of a bobbin during transfer of the bobbin from the magazine into a shuttle.

WARP CONTROL APPARATUS. E. Pfarrwaller (to Sulzer Frères SA). USP 2 819 734, Jan. 14, 1958. (722)

Warp is periodically advanced by means of a clutch driven by the loom drive without interruption for controlling warp tension.

LOOM LETOFF MECHANISM. J. W. Babb and M. C. Voss. USP 2 819 735, Jan. 14, 1958. (723)

Ratchet arrangement for transmitting motion from the actuator rack to the worm of a letoff mechanism in order to allow the weighted carrier to move backward with respect to the warp beam.

KNITTING C 3

LEG AND HEEL CAM MECHANISM FOR CIRCULAR HOSIERY MACHINES. H. S. Burdett (to G. Stibbe & Co. Ltd). USP 2 815 651, Dec. 10, 1957. (724)

The leg and heel cams are mounted on separate movable carriers individually adjustable to correct any discrepancy between the effective length of one cam with respect to the other.

REPLACEABLE SINKER HEAD PRESSER EDGE FOR FULL-FASHIONED KNITTING MACHINES. G. Bitzer (to Textile Machine Works). USP 2 815 652, Dec. 10, 1957. (725)

PURL STITCH KNITTING MACHINE FOR HOME USE. A. Kaufmann (France). USP 2 816 425, Dec. 17, 1957. (726)

ELECTRONIC SPEED CONTROL FOR CIRCULAR HOSIERY MACHINES. P. A. Mahler and J. T. McKibbin (to Fidelity Mach. Co.). USP 2 817 220, Dec. 24, 1957. (727)

Speed control system for high speed machines by means of which speed reduction is effected before the mechanical shifts in any operational change (e.g. shifting from circular to oscillatory operation of the needle cylinder for toe formation).

LATCH TYPE KNITTING MACHINE NEEDLE. H. C. Noe (to Kidde Mfg. Co.). USP 2 817 222, Dec. 24, 1957. (728)

Latch needle with a hook having a bend of 120° to resist breakage and a spoon which cooperates with the cheeks to prevent breakage or damage.

HOLE DETECTOR FOR CIRCULAR KNITTING MACHINES. E. Vossen (to Stop-Motion Devices Corp.). USP 2 817 223, Dec. 24, 1957. (729)

Hole detector which is positioned so that it engages the fabric immediately adjacent to the needles, thus holding the loss of defective fabric to a minimum.

HOSIERY CONSTRUCTION. H. M. Grey (to Alamance Inds. Inc. and Ridgeview Hosiery Mills Co.). USP 2 817 224, Dec. 24, 1957. (730)

Stocking with a band of elastic yarn above the knee which is knitted in such a way that it has no tendency to curl or bunch.

YARN LENGTH CONTROL DEVICE FOR WARP KNITTING MACHINE. A. W. H. Porter (to F. N. F. Machy. Mfg. Co. Ltd). USP 2 818 713, Jan. 7, 1958. (731)

Apparatus for ascertaining at predetermined intervals variations in the average rate of feed of yarn per stitch in a flat warp knitting machine equipped with a positively driven warp beam letoff mechanism.

SHUTTLE BOXING. W. A. Sherwood. USP 2 818 884, Jan. 7, 1958. (732)

Hydraulic regulation of the binder pressure against the shuttle so that the entire deceleration of the shuttle is accomplished by the binder friction.

HOSIERY MENDING DEVICE. H. G. Mayer. USP 2 819 598, Jan. 14, 1958. (733)

Compact, self-contained, and easily operated device for restoring to original condition an area of knit fabric in which one or more loops have accidentally become enlarged.

CAM-ACTUATING MEANS FOR CIRCULAR HOSIERY MACHINES. H. S. Burdett (to G. Stibbe & Co. Ltd). USP 2 819 599, Jan. 14, 1958. (734)

Mechanism for moving and controlling axial movements of bolt cams so that the initial accuracy of the pre-set positions of a bolt cam is maintained for the life of the mechanism despite cable stretching.

FABRICS C 4

TERRY PILE CARPETS. H. J. Harding (to C. H. Masland & Sons). USP 2 814 314, Nov. 26, 1957. (735)

Terry loops are formed along with ordinary pile loops or float pile loops in carpets by feeding the partially lowered terry warp yarn toward the fell as the weft is being beaten up.

APPARATUS FOR PRODUCING FIBER WEBS. H. Kloss (to Sued-West-Chemie GmbH). USP 2 811 195, Oct. 29, 1957. (736)

Dry process apparatus in which a dispersion of fiber materials (mixed with a powdered thermosetting resin, if desired) is suspended in a gas. The resulting suspension ascends spirally to a surface where the mixture of synthetic resin and fibers is separated from the gas.

FUR-LIKE PILE FABRICS. A. Bartovics and S. M. Kinzinger (to George W. Borg Corp.). USP 2 815 558, Dec. 10, 1957. (737)

Shaggy irregular or patterned pile fabrics in which synthetic pile deorientable fibers of different deniers are intertwined in a base fabric and subsequently heat treated to effect deorientation.

QUILTED MATERIAL. J. W. Howden (to Permex Corp.). USP 2 816 054, Dec. 10, 1957. (738)

Quilting composed of two thermoplastic outer layers (e.g. nylon, rubber hydrochloride, etc.) and a fibrous pad inner layer (e.g. thread waste, card waste, jute, fabric scraps, etc., treated with a thermoplastic material) bonded together at equally spaced points.

GLASS FABRIC ELECTRICAL INSULATING TAPE. W. J. Adamik (to Westinghouse Electric Corp.). USP 2 816 348, Dec. 17, 1957. (739)

Bias-woven glass fabric coated with a cured organopolysiloxane elastomer has exceptionally high elastomeric and resilient properties at temperatures up to and higher than 180° C.

PILL RESISTANT FABRIC. G. Pamm and C. J. Rogers (to E. I. du Pont de Nemours & Co.). USP 2 816 349, Dec. 17, 1957. (740)

Nonpilling fabric is obtained from a yarn containing a melt-spun synthetic staple (e.g nylon) with a denier of 1.6 and a filament ratio of 5. The filaments for such a staple are prepared by melt-spinning a linear polymer through a slot-shaped orifice.

FLAME RESISTANT FABRIC. R. P. Lappala (to Bjorksten Research Labs., Inc.). USP 2 816 415, Dec. 17, 1957. (741)

Woven, flexible fabrics with resistance to flames at a temperature of 2000° F have a wire warp and a filling of refractory strands. The latter are paperlike mats, made from aluminum oxide-containing fibers (Fiberfrax), folded longitudinally around and held in place by wire strands.

BODY ARMOR FABRIC. L. P. Frieder and W. S. Finken. USP 2 816 578, Dec. 17, 1957. (742)

Laminated ballistic fabric for use as body armor includes layers formed of highly spun, continuous filament yarns of high twist and others of less highly spun continuous filament yarns of relatively low twist. Adjacent laminates of a particular layer are bonded together at spaced intervals by yarns passing from one to the other of the adjacent laminates.

TUFT INSERTION MECHANISM FOR PILE CARPETS. R. Barclay (to A. F. Stoddard & Co. Ltd). USP 2 817 365, Dec. 24, 1957. (743)

OPEN MESH FABRIC. J. Bussiere (to Bates Mfg. Co.). USP 2 817 371, Dec. 24, 1957. (744)

Fabrics formed of synthetic yarn in which the filling and warp ends are maintained in equidistant, parallel relationship by means of interwoven binder yarns.

DECORATIVE CUSHION FABRIC. S. W. Alderfer (to Kendall Co.). USP 2 817 597, Dec. 24, 1957. (745)

Embossed cushion material made by applying a layer of foamed latex to one surface of a fabric, gelling the latex, forming a design in intaglio, vulcanizing, and applying a protective coating to the uncompressed surfaces of the gelled latex.

BACKING FABRIC FEED CONTROL FOR CARPET TUFTING MACHINES. J. McNutt (to James Lees & Sons Co.). USP 2 818 037, Dec. 31, 1957. (746)

NYLON INSULATED ELECTRICAL CONNECTOR. H. O. Woolley, Jr. (to AMP Inc.). USP 2 818 363, Dec. 31, 1957. (747)

Method of bonding a nylon insulating jacket to a metal tube.

POLYETHYLENE TEREPHTHALATE CIGARETTE FILTER. J. T. Rivers, Jr. (to E. I. du Pont de Nemours & Co.). USP 2 818 868, Jan. 7, 1958. (748)

ORGANOPOLYSILOXANE BONDING AGENTS FOR GLASS FABRIC LAMINATES. O. A. Braley (to Dow Corning Corp.). USP 2 818 906, Jan. 7, 1958. (749)

Lead and butyl-tin-2-ethylhexoates are claimed as catalysts for siloxane resin bonding agents.

SHRINKLESS SEAM. H. C. Donaldson, Jr. and T. A. Bramfitt (to Cluett, Peabody & Co.). USP 2 819 696, Jan. 14, 1958. (750)

A shrinkless seam is prepared by stitching together fabric layers with regular sewing thread, as well as with a physically separate, temporary, and water removable yarn (e.g. polyvinyl alcohol yarn) which runs along the exterior surface of the fabric layers. This temporary thread is held under slight tension and the needle thread crosses it in alternate directions with successive stitches.

FLEXIBLE KNITTED METALLIC WIRE FLAME BARRIER FABRIC. A. M. Goodloe (to Metal Textile Corp.). USP 2 819 759, Jan. 14, 1958. (751)

PLASTIC FOAM SPONGES. T. G. Gregory. USP 2 819 993, Jan. 14, 1958. (752)

Plastic foam sponges resistant to breaking apart or separating during use by the inclusion of short disconnected lengths of fiber cords dispersed randomly throughout.

FINISHING AND CHEMICAL PROCESSING D

AXIALLY COMPRESSIBLE REEL FOR YARN WET PROCESSING. W. Scholl (Switzerland). USP 2 818 222, Dec. 31, 1957. (753)

CHEMICAL PROCESSES D 1

PARTIAL ACETYLATION OF COTTON. E. J. Keating, A. S. Cooper, Jr., and E. M. Buras, Jr. (to U. S. Secretary of Agriculture). USP 2 816 003, Dec. 10, 1957. (754)

Cotton cloth or yarn is first activated with acetic acid and then partially acetylated with acetic anhydride and acetic acid in the presence of perchloric acid. The unreacted acetic acid and acetic anhydride in the spent acetylating liquids are then chemically converted to compositions suitable for replenishing the activating liquid.

PERMANENTLY PLEATED FABRICS. F. G. Brown (to Apponaug Co.). USP 2 817 468, Dec. 24, 1957. (755)

Pleated finish made by treating a fabric web with an unpolymerized resin solution, pressing in folds under heat to create pleats while the fabric is moving, and finally curing the resin to ensure permanency of finish.

IMPREGNATED WOOL FELT. H. Boeddinghaus (to Am. Felt Co.). USP 2 817 574, Dec. 24, 1957. (756)

Light weight dyed wool felt of increased strength is obtained by impregnating the felt, prior to dyeing, with an aqueous solution of a butadiene acrylonitrile copolymer latex.

SHRINKPROOFING WOOL WITH EPOXY RESINS AND POLYALKYLENEIMINES. C. E. Pardo, Jr. (to U. S. Secy. of Agri.). USP 2 817 602, Dec. 24, 1957. (757)

Wool fibers are impregnated with an emulsion containing a polyalkyleneimine and an epoxy resin and cured at 50 to 100° C.

PLATING GLASS FIBER ROVINGS WITH IRON. H. R. Nack and J. R. Whitacre (to Commonwealth Eng. Co.). USP 2 818 351, Dec. 31, 1957. (758)

Gas plating apparatus for coating glass fiber strands with iron deposited from the vapor state at high speeds.

DELUSTERED SYNTHETIC FIBERS. K. Dithmar (to Deutsche Gold & Silber Scheideanstalt). USP 2 819 173, Jan. 7, 1958. (759)

Imparting a mat or dull finish to manmade fibers by incorporating finely divided water-insoluble metal oxide aerogels in the spinning solution.

PROCESS FOR OILING FABRICS PRIOR TO THEIR CONVERSION TO FIBER. H. J. Fairfield. USP 2 819 496, Jan. 14, 1958. (760)

Woven or knitted fabrics are tumbled in a closed container in the presence of atomized steam and oil.

RESIN FINISHING PROCESS. K. H. Barnard and J. N. Growney (to Am. Cyanamid Co.). USP 2 819 179, Jan. 7, 1958. (761)

Glazed or embossed finishes are imparted to textile fabrics with excellent retention of the original tear strength by impregnating the fabric with a heat-reactive, water-dispersible aminoplast, partially drying, mechanically finishing under heat and pressure, and drying and curing until the finish is water-insoluble.

TESTING AND MEASUREMENT E

FIBERS E 1

METHOD FOR COMPARING DYE AFFINITY OF FIBERS. M. E. Carter, G. O. Etchison, and H. M. Waddle (to West Point Mfg. Co.). USP 2 817 140, Dec. 24, 1957. (762)

Reproducible and sensitive method for comparing dye affinities of different fiber lots consists of dyeing, rinsing, and drying selected samples, rotating and illuminating them with diffuse light, and comparing the light reflected by the sample with that reflected by a standard.

YARNS E 2

MEASUREMENT OF LUSTER OF CONTINUOUS YARN. N. Winogradoff (to British Nylon Spinners Ltd). BP 756 864, Sept. 12, 1956. Through BCIRA 37: 501 (1957). (763)

In a method for continuously measuring the intensity of light reflected from a running yarn, a hollow semicone of light, directed coaxially with the portion to be illuminated, is brought to a focus at the center of the thread, and the light specularly reflected is received by a photoelectric cell.

THREAD TESTING APPARATUS. A. H. Milnes (to Cook & Co. Ltd). BP 757 571, Sept. 19, 1956. (Addition to BP 701 491). Through BCIRA 37: 501 (1957). (764)

The parent invention concerned a winding tester, especially for sewing thread, in which the thread was wound at constant speed by a slower and a faster roller between which a loop of the thread was weighted, and an adjustable tension device (e.g. spring-loaded discs) followed by a yieldable control came between the first roller and the weight. It is now proposed to use as adjustable tension device a conical roller driven in synchronism with the first roller and a displaceable guide under the influence of the control to feed the thread at the appropriate diameter of the cone.

FABRICS E 3

FABRIC SERVICEABILITY TESTING APPARATUS. J. J. Press. USP 2 815 658, Dec. 10, 1957. (765)

The field of pills produced by rubbing the fabric on the apparatus described is compared with a predetermined standard and is used as an index of serviceability.